

AULA ORIENTALIS-SUPPLEMENTA



THE FARMER'S INSTRUCTIONS
A SUMERIAN AGRICULTURAL MANUAL

Miguel Civil

VISIT...

LANZAROTE
Caliente.COM

The Farmer's Instructions

A Sumerian Agricultural Manual

Miguel Civil



EDITORIAL AUSA

Apdo. 101 - 08280 SABADELL - BARCELONA

AULA ORIENTALIS - SUPPLEMENTA

Director: G. del Olmo Lete

5

11/14/94 Blue

Loef man
09/26/00



© 1994 Miguel Civil Desveus

© 1994 by Editorial AUSA

Apartado de Correos 101

08280 SABADELL (Barcelona) Spain

ISBN: 84-88810-03-2

Dep. Legal: 807-1994

Impreso por POBLAGRÀFIC, S.A.

AH-0993
2 JA 97

to Claudia

Contents

<i>Preface</i>	ix
<i>Acknowledgements</i>	x
<i>Abbreviations</i>	xi
<i>Table of Weights and Measures</i>	xiii
1. INTRODUCTION	1
1.1. Title	1
1.2. Contents	1
1.3. Purpose	3
1.4. Date	4
1.5. Previous Studies	4
1.6. Remarks on the Present Edition	5
2. TEXTUAL SOURCES	7
2.1. Source List	7
2.2. Archeological Context of the Sources	11
2.3. Types of Tablets	12
3. TEXTUAL RECONSTRUCTION	15
3.1. Methodological Remarks	15
3.2. The Nippur Text	16
4. GRAMMAR AND STYLE	23
4.1. Grammar: Syntax	23
4.2. Special Constructions	26
4.3. Writing	26
4.4. Stylistic Remarks	26
5. THE TEXT	28
5.1. Nippur Text	28
5.2. Non-Nippur Versions	41
6. COMMENTARY	67

7.	EXTENDED COMMENTARY	109
7.1.	Of Levees, Ditches, and Dikes	109
7.2.	The suhúb-Oxen	141
7.3.	The ^{gi} šal-šub and Related Implements	149
7.4.	The Verb kab/káb—dug ₄ /di and Related Words	153
7.5.	The túg-sig ₁₈ -Plow	167
7.6.	The Furrows	173
8.	ADDITIONAL TEXTS	177
8.1.	Letters on Agricultural Matters	177
8.2.	Ur III Agricultural Texts in the Oriental Institute	185
8.3.	The Grammatical Text BM 23331	205
9.	TEXTUAL MATRICES	207
	<i>References</i>	229
	<i>Indices</i>	240
	<i>Words in the Farmer's Instructions</i>	240
	<i>Sumerian Words Discussed</i>	243
	<i>Akkadian Words</i>	252
	<i>Texts Quoted</i>	256
	<i>Museum Numbers of Oriental Institute Tablets</i>	268
	<i>Plates</i>	

Preface

The ones who have sheep
the ones who have oxen
the ones who have silver
the ones who have precious stones
they will sit all day
at the gate of the man who has grain

Sumerian Proverb

SP 70 + 612 263, 266 = Labai & Asinan 182-183

Very much aware that agriculture was the mainstay of their economy, the ancient dwellers of the flood plains of Mesopotamia practiced the art of farming with utmost care and meticulousness. Analyzing their agricultural records and reading their literary descriptions, one gets the impression that their work on the land would be better called gardening than tilling. This book attempts to make accessible a native manual that condenses the basic rules of the farmer's art. It is not really a poem, but somehow one perceives through its terse words the poetry of the eternal relationship between man and earth that inspired Hesiod and Vergil. To clarify the idioms and technical terms of the Sumerian text has not been an easy task. Many points remain foggy, but the author hopes that his work, with all its shortcomings, will be a stepping stone for a better understanding of the ancient farmer's advice.

The author has been working on this text on and off for years, as part of an ambitious program to edit a large segment of Sumerian literature. A preliminary abridged edition was presented to the Sumerian Agriculture Group in Leiden in 1987. At the time, the author asked his colleagues for criticism and advice. Two of them, Axel Steensberg and Marvin Powell, took time to read and comment. Their help is gratefully acknowledged and the author, who bears sole responsibility for all that is said in the book, may some day be sorry for not having followed more fully their suggestions.

Many colleagues and institutions helped in making the sources available and in providing illustrative material, the Acknowledgements gratefully recognize them. Gregorio del Olmo Lete deserves special thanks for accepting the book for publication in AULA ORIENTALIS - SUPPLEMENTA. In the final stages of preparation, Gertrud Farber, Markus Hilgert, Lorenzo Viganò, and Claudia Suter provided essential help in proofreading and in the compilation of indices and bibliography. It would be a mistake to attribute to any of them the errors and imperfections that may remain in the volume. The author alone is answerable for them.

Acknowledgments

This book publishes, or and makes use of, cuneiform tablets housed in the collections of the University Museum (Philadelphia), the Oriental Institute (Chicago), the British Museum (London), the Ashmolean Museum (Oxford), the Yale Babylonian Collection (Yale University), the Istanbul Archeological Museum, and the Iraq Museum (Baghdad). The authorities of these institutions are gratefully thanked for permission to publish and use the texts.

For collations and sundry help, the author thanks Julia Asher-Greve, Veysel Donbaz, Irving Finkel, Benjamin Foster, Ulla Kasten, P. R. S. Moorey, and Åke Sjöberg.

The materials for the illustrations are used with permission of, and (if applicable) are copyrighted by the following individuals and institutions:

plates i-ii: the University Museum (photos by M. Civil)
plates iii-iv: the University Museum (photos by D. Owen)
plates v-vi: the University Museum (photos by R. Goldberg)
plates vii-viii: the Trustees of the British Museum
plates ix-xii: the Ashmolean Museum
plates xiii-xiv: the Yale Babylonian Collection, Yale University
plates xv-xvi: the Trustees of the British Museum.

Abbreviations

Cuneiform sources are cited in the customary way, using the abbreviations in *CAD*, completed by the ones in M. Sigrist and T. Gomi *The Comprehensive Catalogue of Published Ur III Tablets*. Bethesda MD: CDL Press. 1991. Abbreviations which differ from the ones in the above lists, or are not found in them, together with non-bibliographical ones, are given below. Studies and discussions are cited in "anthropological" format, see *References*, at the end of the book. Cuneiform literary compositions are listed there as well. Historical inscriptions are cited according to the abbreviations in *FAOS* 5, *FAOS* 9, and *StOr* 49. Classical authors are quoted from the editions in the *Loeb Classical Library*.

Aa	lexical series á A = <i>nâqu</i> (MSL 14)
ARET	<i>Archivi Reali di Ebla, Testi</i>
ARN	F. R. Kraus et al., <i>Altbabylonische Rechtsurkunden aus Nippur</i>
ASM	siglum of tablets in the Arizona State Museum
AuOr	<i>Aula Orientalis</i>
AWL	see Bauer 1972
BSA	<i>Bulletin on Sumerian Agriculture</i>
BWL	W. G. Lambert, <i>Babylonian Wisdom Literature</i>
CSTR	T. Fish, <i>Catalogue of Sumerian Tablets in the John Rylands Library</i>
ECTJ	A. Westenholz, <i>Early Cuneiform Texts in Jena</i>
EDPA	H. Limet, <i>Etudes de documents de la période d'Agade appartenant à l'Université de Liège</i>
Emar	D. Arnaud, <i>Recherches au pays d'Aštata: Emar 6</i>
FI	Farmer's Instructions
FN	field name
H	siglum of tablets excavated at Tell Haddad
ISET	<i>Sumerian Literary Tablets and Fragments in the Archaeological Museum of Istanbul</i>
Ki	siglum of tablets from Kish in the Ashmolean Museum, Oxford
KADP	F. Köcher, <i>Keilschrifttexte zur assyrisch-babylonischen Drogen- und Pflanzenkunde</i>
MTBM	M. Sigrist, <i>Messenger Texts from the British Museum</i>
Nakahara	Y. Nakahara, <i>The Sumerian Tablets in the Imperial University of Kyoto</i>
NATN	D. I. Owen, <i>Neo-Sumerian Archival Texts Primarily from Nippur</i>
Nebraska	N. W. Forde, <i>Nebraska Cuneiform Texts of the Sumerian Ur Dynasty</i>
NFI	Farmer's Instructions, Nippur sources (chapter 3)
NH	<i>Naturalis Historia</i> (Pliny)
NP	nominal phrase
OAIC	I. J. Gelb, <i>Old Akkadian Inscriptions in Chicago Natural History Museum</i>
OrAn	<i>Oriens Antiquus</i>
OrSuec	<i>Orientalia Suecana</i>
OSP	A. Westenholz, <i>Old Sumerian and Old Akkadian Texts in Philadelphia Chiefly from Nippur</i>

PIOL	<i>Publications de l'Institut orientaliste de Louvain</i>
PN	personal name
PSD	<i>The Sumerian Dictionary of the University Museum of the University of Pennsylvania</i>
PVA	Practical vocabulary A (Ebla)
RGTC	<i>Répertoire géographique des textes cuneiformes</i>
RIAA	L. Speelers, <i>Recueil des inscriptions de l'Asie antérieure ... à Bruxelles</i>
RR	<i>de Re Rustica</i> (Columella, Palladius, Varro)
SAG	Sumerian Agriculture Group
SEb	<i>Studi Eblaiti</i>
SpTU	<i>Spätbabylonische Texte aus Uruk</i>
SLFN	J. W. Heimerdinger, <i>Sumerian Literary Fragments from Nippur</i>
SLTN	S. N. Kramer, <i>Sumerian Literary Texts from Nippur</i> . AASOR 23
SMEA	<i>Studi Micenei ed Egeo-anatolici</i>
STTI	V. Donbaz and B. R. Foster, <i>Sargonic Texts from Telloh in the Istanbul Archaeological Museum</i>
TENS	see Sigrist 1983
TŠŠ	R. Jestin, <i>Nouvelles tablettes sumériennes de Šuruppak</i>
TSU	H. Limet, <i>Textes sumériens de la IIIe dynastie d'Ur</i>
TT	<i>Tools and Tillage</i>
U	siglum of tablets excavated at Ur
UDU	G. Contenau, <i>Umma sous la dynastie d'Ur</i>
UTI	F. Yildiz and T. Gomi, <i>Die Umma-Texte aus den Archäologischen Museen zu Istanbul</i>
VE	Vocabulario di Ebla (<i>Materiali epigrafici di Ebla</i> vol. 3)
VP	verbal phrase
W-B	siglum of tablets in the Ashmolean Museum, Oxford
YN	year name

Table of Weights and Measures

This table gives the measures, current in Ur III and OB times, mentioned either in the text of FI or in the commentary. Only the multiples and submultiples of immediate interest to the reader are given here. Needless to say, the modern equivalents are only approximate: more correct would be to give, for instance, the equivalent of 1 *silá* as $940 \pm 8\%$ cm³.

1. Linear Measures

šu-si (finger)	1/30 kùš	1.6 cm
kùš (cubit)	30 šu-si	50 cm
ninda	12 kùš	6 m
dana	1800 ninda	10.8

2. Area Measures

gín	1/60 ninda ²	0.6 m ²
sar	1 ninda ²	36 m ²
iku	100 sar	3600 m ²
bùr	18 iku	6.48 ha

3. Volume Measures

gín	1/60 sar	0.3 m ³
sar	1 ninda ² × 1 kùš	18 m ³

4. Solid Capacity Measures

silá	1/300 gur	1 l
ban.	10 silà	10 l
ba-rí-ga/Pl	60 silà	60 l
gur	300 silà	300 l

5. Weights

še	1/180 gín	0.046 g
gín	1/60 ma-na	8.3 g
ma-na	60 gín	500 g
gun/gú	60 ma-na	30 kg

1. INTRODUCTION

1.1. TITLE

"Farmer's Instructions" (henceforth abbreviated FI) is the title given here to a brief, simple didactic text that gives advice on cereal cultivation. The text has received other titles: "Georgica" (Gadd, in Landsberger 1937:151), "Farmer's Almanac" (Kramer 1956:61), and "Unterweisungen eines Bauern an seinen Sohn" (Edzard 1987:45). The title adopted here is based on the one given by the text itself (na-de₅-ga "instruction," "advice," line 108). The native scribes designated the tablets by the beginning of their opening lines and, thus, FI is listed in the ancient tablet catalogues as u₄-ul-uru₄ (and variants, see textual note to line 1).

1.2. CONTENTS

In a terse style more similar to Cato's *de Agri Cultura* than to any other ancient agronomic work, FI describes, in chronological order, the proper way to cultivate cereal crops, specifically barley,¹ from the flood season in April-May, through tilling and sowing, until the end of the harvest the following Spring. The text covers an entire agricultural year.² The contents are straightforward and technical; ethic exhortations are kept to a minimum, and the only mythological element is the attribution of the advice to the god Ninurta. The picture of cereal agriculture provided by FI is nevertheless, one may say, intentionally incomplete. It assumes a certain amount of general knowledge on the part of the ancient hearer/reader, knowledge not easily available, if at all, to the modern reader.³ Thus, when the basic plow is modified to be used as a seeding implement (lines 41-45), everyone in ancient Mesopotamia knew that the process involved a change of share and the addition of a seed funnel. No one then needed to be told, and thus the text limits itself to less known, or variable (and therefore unpredictable), technical details. The modern reader, however, has to infer this basic knowledge from other sources. We know about the share and the funnel, but there may be many details in other paragraphs that escape the modern reader who lacks the background knowledge assumed by the ancient author.

The following brief synopsis outlines the main sections and themes.

Line 1. *Introduction*. The god Ninurta, called here the Old-Time-Tiller, is purported to have given these instructions to apprentice farmers.

2-13. *Flood irrigation and drainage* (April-May). At the time of the yearly flood of Euphrates and Tigris (which in Southern Iraq coincides with the harvest season), preparations should be made to

The Farmer's Instructions

ensure the proper flow of water in the canals and its proper level in the flooded fields. Oxen are allowed in the flooded fields only for a limited period of time, until only a few wet spots remain in them. While the field is drying at the beginning of the hot season, it has to be worked with various kinds of hoes to keep it level and free of weeds.

14-22. *Preparation of tools and implements.* With the carpenter's tools at hand, the farmer should prepare the yoke which was stored hanging from a rafter during the winter. Ancient Mesopotamian farming implements were built not with tenons and mortises, but put together with pegs and bound joints, including leather straps and thongs. These are singled out for special attention, since it must have been difficult to keep such joints in good repair. The baskets to measure the seed must be gauged and reinforced. Whips require the work of specialized artisans.

23-29. *The plow.* Oxen and plows should be available in proper numbers, with spares, and the oxen should be correctly hitched up. Follows advice on how long a plow will last and about its cost.

30-34. *First plowing and harrowing* (Summer and early Fall). The ground is to be broken three times with the plow. Each time the plow is designated by a different name. The share was either modified or the names varied according to the type of task (e.g., cross-plowing). The field is to be harrowed three times and the work finished with mauls.

35-40. *General exhortations about field work.* The farmer should be diligent. When the constellations indicate that sowing time has arrived, he must be willing to take the oxen many times to the fields. Hoeing must be constant.

41-45. *Making the seeder-plow.* The plow is modified for sowing: the sole is changed (a different share is implied), and with it the leather straps. Side boards ("wings" or "ears") are added.

46-54. *Sowing.* The best furrow spacing is ca. 0.75 m, i.e., eight furrows per unit of field width (1 *ninda* = about 6 m). This way, damage by lodging will be controlled. The amount of seed, planted at a depth of ca. 3.2 cm, is one *gin* (ca. 300 barleycorns, ca. 9 gr) per unit of furrow length (also about 6 m).⁴ The share will require frequent adjusting.

55-63. *Furrows and their maintenance.* A somewhat obscure passage, due to our ignorance of furrow terminology and to the uncertainty of whether border irrigation or furrow irrigation was used. After sowing, additional work will keep furrows and ridges in good repair. Clods should be removed, and the furrow section should be kept according to drainage conditions.

64-73. *Irrigation and care of the crops.* Religious rites are performed at every stage of the growth of the barley plants. The first one mentioned is against rodents. Birds (and/or locusts) should be kept away from the field. The plants are watered four times at specified stages of growth. Care should be taken not to water the grain when the plant leaves are "fully spread" because of the danger of rust infection. The last irrigation takes place when the grains of barley can already have the hulls easily

1. Introduction

removed. The yield increase brought about by irrigation is 10%. It is not clear whether this is the total gain or only the gain due to the fourth irrigation.

74-89. *Harvest*. The work should start at dawn and be carried out by teams of three: a reaper, a man to gather the sheaves, and another man to tie them up. The plants should be carefully put in stacks to dry, not to be disturbed. The hurry to taste bread made from the new harvest should not shorten the drying time.

90-97. *Preparation of the threshing floor*. Once the area is chosen and the ground prepared, the ground should be let alone a few days. Meantime, the path to be followed by wagons and carriers, going back and forth bringing the harvest from the field, should be marked and the wagons made ready. The threshing floor surface should be smoothed and a sledge, teeth secured with bitumen, be prepared.

98-101. *Threshing*. Oxen will trample the grain. Threshing requires strong men. Rites for the not yet cleaned grain should be performed.

102-104. *Winnowing*. No method is described. Requires experienced help.

105-107. *Preliminary measuring and release of the grain*. The conic piles of clean grain are approximately measured by the portion of a stick they cover. Rites are performed the evening and night of the last day. The time to release the grain for transportation elsewhere is midday.

108-109. *Subscript and doxology*. These instructions are said to originally come from the god Ninurta, patron of agriculture.

The advice given in FI is limited to the agronomic aspects of cereal cultivation: irrigation, tillage, seed amounts, etc. All administrative matters, such as labor costs and management; and legal considerations, such as field rental and crop sharing; are excluded. For a complete picture of ancient Mesopotamian land tenure, the historian needs to study the contracts and administrative texts.⁵

1.3. PURPOSE

The creator(s) of FI may have had many goals in mind. The preservation of the traditional ways, described in the traditional language, during the cultural and political crisis of the XVIIIth century B.C., may have been one of them. Aesthetic motives, like those that inspired Hesiod or Vergil, do not seem to have played any role in the creation of the composition. FI cannot be considered a poetic text. The didactic tone, on the other hand, is undeniable. Comparison with one of the types of so-called grammatical texts, the "procedural" ones (see *MSL* SS 1 72f.), and the use of FI in schools suggest that the purpose of the composition was less to teach how to grow cereal crops than how to do it "in Sumerian." The apprentice scribes were taught the Sumerian terms so that one day, possibly only in an ideal society, they could exercise their functions in the agricultural sector of the administration. The legal aspects of land tenure were learned elsewhere from model contracts and,

presumably, law codes, but the farmer's jargon and wise agronomic practices were learned from FI. The descriptions and prescriptions of the text depict, no doubt, ideal farming methods. The wise reader will refrain from automatically assuming that every farm had wagons, and that every field was, perhaps, carefully fenced. To realistically reconstruct the everyday's life of the Mesopotamian farmer, the picture provided by FI has to be confirmed and nuanced by letters and administrative documents of the time.

1.4. DATE

The tablets inscribed with the FI text are not explicitly dated by subscripts. By external criteria, the sources from Ur and Nippur must date from shortly before the destruction of these cities during Samsuiluna's reign, 1737 and 1722 B.C., respectively. The date of the tablets from Tell Haddad (ancient Meturan) could be slightly older, before 1780 B.C., if they belong to the same level where tablets bearing dates of Daduša and Ibalpiel II of Ešnunna were found.⁶ The rest of the sources probably dates from one century or so later. Source E₃, and perhaps A₃, could belong, however, to the older group. The time the text was first created is not known. The present text does not show any of the orthographic characteristics of Ur III texts present, besides the administrative documents, in some Šulgi hymns (Klein 1981:64ff.), in some literary contests,⁷ or in literary fragments of the time. The terminology of harrowing differs from the current one in Ur III times. Sowing rates also differ (see commentary to lines 49ff.). An Ur III date (2112-2004 B.C.) for the text in its present form is thus excluded. Needless to say, FI may represent an older composition updated linguistically and technically after the end of the Ur III empire. The presently available text must thus be dated to the XVIIIth and XVIIth centuries B.C. Sites in which tablets with the FI text have been found include Ur, Nippur, Meturan, and the Sippar-Babylon area. The composition is listed in many catalogues of school tablets, see textual notes to line 1. The text seems to have survived the Middle-Babylonian period, although no post-OB tablets have been so far recovered. A Kouyunjik catalogue of the series *si-dù*, identified by Finkel,⁸ lists FI as the fourteenth tablet of the thirty-five that compose the series, under the title *u₄-ul-lí-a engar-ra dumu-a-ni*.⁹

1.5. PREVIOUS STUDIES

A prism with the text of FI (here source A₃) was first published by Langdon, *OECT* 1 pl. 32ff. in 1923, without transliteration or translation. The editor did not, at the time, understand the contents, which he describes as a "religious-epical composition dedicated to the god Sin." Chiera 1923-24:263, reviewing Langdon's volume, called it "a legendary text, recounting the good deeds of the god Urta" and pointed out the first duplicate, CBS 13901 (*SEM* 42, part of source E in the present edition). In 1934, he still describes the composition as a "legendary" text, a "prayer to Ninurta", but adds "... in charge of things agricultural" (*SEM* p. 4). Landsberger 1937 was the first to recognize the true nature of the composition when some passages from source A₂ (which would not be published until 1966 in *UET* 6/2) were made available to him by Gadd. According to Landsberger 1937:150, the text is "ein sum. Lehrtext, in dem ein Vater seinen Sohn über die Pflichten eines Ackerbauers belehrt". Gordon 1960:147f., in his survey of "wisdom" literature, classifies the text among "practical instructions, a category of wisdom literature". Several preliminary translations and paraphrases have appeared; the better known are those of Jacobsen 1957-58, Kramer 1963:340ff., and Salonen 1968: 202ff. No critical edition is so far available, only Salonen gives a provisional Sumerian text

1. Introduction

prepared by J. Aro. Based on a restricted number of sources, these translations are of limited value. Partial studies of interest are quoted in the commentaries or can be found in the list of references.

1.6. REMARKS ON THE PRESENT EDITION

The present edition gives primarily a critical edition of the Nippur version. The reason is that its large number of sources guarantees a homogeneous text and restricts, at the same time, the limits of its variability. Grammar and writing habits of the scribes of the Nippur school are relatively well understood, and this is an additional motive for this choice of sources. The edition of the Nippur version, however, cannot be considered "pure." The Ur source (A_2) and the Oxford prism (A_3) have been incorporated in the critical apparatus, largely as a matter of convenience for the help they provided in the early stages of reconstruction. Their variants, however, are not used in the reconstructed text except in a few unavoidable cases. All other non-Nippur sources are published separately, even if some fragments show no or minimal deviations from the text of the main edition. The old line numbers have been maintained. Lines found in A_2 and A_3 but not in the Nippur sources have been enclosed in braces. The text edition is followed by a traditional critical apparatus, and the text matrices (score) are given in chapter nine. For more details about the text reconstruction, see chapter three. The translation is followed by a general commentary to make the terse text understandable. The commentary confines itself to a brief discussion of the text matter. Some points which require a more lengthy investigation are the object of an extended commentary in chapter seven. In general, once a point has been clarified, no attempt has been made to present an exhaustive collection of supporting quotations. References to standard tools, such as *PSD*, *CAD*, and *AHW*, are implicit. Only when a more precise reference is needed, or when a correction is proposed, do the commentaries explicitly point to such tools. The same can be said of Salonen 1968, to be considered a secondary compilation of materials. Previous discussions of individual passages are quoted, if relevant, in the commentary. No time is wasted in emending obviously incorrect translations of previous scholars, such as "have your wagons climb the barley mounds" or "when the barley stands up high as a mat in the middle of a boat." Some texts related one way or another to agricultural subjects are given in chapter eight. The *Farmer's Instructions* are the starting point of a long tradition of agronomic works which includes, on the one hand, the classical Greek and Roman authors and, on the other hand, the prolific and varied Byzantine and Arabic production centered on the *Nabataean Agriculture*.¹⁰ This second branch, incidentally, tends to pay little attention to cereal cultivation. No genetic relationship between FI and these later works can be established. Their similarities result from the identity of the subject matter. Therefore, the Georgica tradition is not examined here. This tradition is a fascinating subject that deserves special treatment of its own right.

Footnotes

- ¹ The most cultivated cereal in ancient Mesopotamia was barley (še, u₂₀), with emmer (zíz, úd) a distant second; wheat (/kib/) was grown in very small quantities. Typical ratios are given, e.g., in Jacobsen 1957-58:26-33. As for the cereal names, the commonly accepted name for barley is še, but there is growing evidence (Civil 1982:15, 1989:11, Cavigneaux 1989) that not only is u₂₀ another Sumerian word for barley, but that it also has a reflex in Akkadian. The var. u silà for še silà in sources A₂ and C₃ of FI 73, could be taken as a further confirmation of the reading u₂₀. The name for emmer (*Triticum dicoccum*) is normally read zíz (with lexical support), but there is also a competing term úd; however, since it is mainly attested in the compound úd-duru₅, one may wonder whether ud(d)uru < *u₂₀+duru₅. Traditionally, the name of wheat has been read gig, but a gloss in an unpubl. OB Nippur literary text provides the gloss ki-ib; this form, of course, cannot be separated from Akk. *kibtu*, with which must share a common origin.
- ² Source B₃ (for the sigla designating the sources, see chapter 2) inserts at the end (iv 20) a half-preserved line which mentions irrigation ditches, thus explicitly closing the yearly loop. A radically different interpretation divides the composition in two main parts (lines 1-40 and 41-end) and claims that the agricultural activities therein described cover a period of three years (Butz 1983:477ff.). No arguments are advanced there for such an interpretation which breaks the continuity of the discourse. The following summary and the commentary to the text implicitly refute this proposal.
- ³ For a general discussion of the epistemological problems in the reading of ancient texts, see Civil 1980. A recent rebuttal, Hallo 1990, misses, I am afraid, the main point.
- ⁴ This corresponds to a very low seeding rate of 21.6 kg/ha. The lowest USA rate is 40 kg/ha and can be as high as 161 kg/ha (Briggs 1978:298).
- ⁵ For a bibliography, see Ellis 1976:178-81.
- ⁶ They can date later, however, from the time of the destruction of the towns of the Diyala by Samsuiluna (24th year, 1725 B.C.). See Cavigneaux and al-Rawi 1993 for all the information presently available about the Tell Haddad tablets.
- ⁷ Particularly in the *Debate of Silver and Copper*, in which Ur-Namma is mentioned, and which is written in a dialect identical to that of Gudea's.
- ⁸ Personal communication 4/18/83.
- ⁹ The tablet is K 1870, see Bezold *Cat.* I 362, with a transliteration of the subscript. The seventh tablet of si-dù is e-el-lu ma-al-lu is the *Song of the Oxen* published in Civil 1976a, of which at least two Kouyunjik fragments are known: K 18450 (Livingstone 1980), and K 3587, identified by R. Borger (personal communication).
- ¹⁰ For an overview, see Fahd 1977; cf. also Rodgers 1980.

2. TEXTUAL SOURCES

Some forty prisms, tablets, and fragments inscribed with the text of FI are presently known, but only about half of them have been previously published. The majority, if not all, are to be considered school exercises.

2.1. SOURCE LIST

2.1.1. Nippur Texts

- | | | |
|---|---|-----------------------------|
| A | CBS 15152 (pl. i)
One-column tablet (1-30), complete. | 1-30. |
| B | CBS 14024 (pl. ii)
One-column tablet (1-25), complete. | 1-25 |
| C | 3N-T490 = IM 58515 + 3N-T900,14 (<i>SLFN</i> pl. 67)
One-column tablet (1-36), upper half; from
TA 205 XI 2. | 1-8, 27-36. |
| D | 3N-T901,58 (<i>SLFN</i> pl. 68)
One-column tablet (1-30), upper edge; from
TA 205 XI 1. | 1-3, 30. |
| E | CBS 10403 + CBS 13901 (<i>SEM</i> 42) + N 1265 (pl. iiif.)
Two-column tablet, bottom and lower right
part missing. Subscript: 29 / šu-si 42; 29 is
the number of lines in col. iv.. | 1-17, 30-46, 66-87, 92-109. |
| F | Ni 2276 (<i>SLTN</i> 59) + Ni 4583 (<i>ISST</i> 1 107) +
UM 29-13-922 (pl. ii)
Two-column tablet with the upper left quar-
ter and most of the edges missing. Photo of
the reverse in Kramer 1963 pl. 4, after p.
160, and <i>UMB</i> 16/2 pl. 10. | 15-61, 71-109. |
| I | 3N-T462 = IM 58495
Two-column tablet, lower right corner; from
TA 205 XI 2. | 26-30, 50-62, 82-83. |

The Farmer's Instructions

- | | | |
|---|--|----------------|
| J | 2N-T397 = IM 57981
One-column tablet (29-54), left edge fragment,
incorrectly glued, bad surface; from TB dump. | 29-40, 49-54. |
| L | 3N-T504 = IM 58527
One-column tablet (30-49(?)), complete but
damaged; from TA 205 XI 2. | 30-40. |
| M | 3N-T900,4 (<i>SLFN</i> pl. 68)
Two-column tablet, upper left corner; from
TA 205 XI 1. Compatible with E ₁ . | 32-34, 92-93. |
| N | 3N-T923,497 (<i>SLFN</i> p. 67)
One-column tablet (32-57), upper left corner;
from TA 184 XI 2. | 32-38, 53-57. |
| O | Ni 4368 (<i>ISSET</i> 2 81)
One-column tablet with the entire composi-
tion, left edge fragment. | 39-52, 65-76. |
| Q | 2N-T279 = IM 58951
One-column tablet (41-76), complete; From
TB 63 I 1, house D. Lower edge subscript:
35 na-Pl. | 41-76. |
| R | 3N-T904,150 (<i>SLFN</i> pl. 68)
One-column tablet, fragment close
to the left edge; from TA 205 XI 2. | 42-48, 52-57. |
| S | 3N-T917,365* (<i>SLFN</i> pl. 69)
Small center fragment. From TA 191 X 4. | 54-65. |
| T | 3N-T919,472 (<i>SLFN</i> pl. 68)
One-column tablet, small center fragment;
from TA 191 XI 1. | 54-58, 73-78. |
| U | N 3665
One-column tablet, left edge fragment. Left
edge: ka-tab-ba ab-sín [...]. | 54-57, 64-71. |
| V | 3N-T890* = IM 58797
Small center fragment; from TA XI. | 56-70. |
| W | 3N-T918,413 (<i>SLFN</i> pl. 67)
One-column tablet ([66]-95), left edge fragment;
from TA 191 XI 1. | 67-77, 88-95. |
| X | 3N-T502 = IM 58525
One-column tablet (79-109), upper right corner; | 79-88, 106-09. |

2. Textual Sources

from TA 205 XI 2. Subscript: [...] ^dinanna-ma-an-sum.

- | | | |
|----------------|---|-----------------|
| Y | 3N-T527 = IM 58535
One-column tablet, lower right corner fragment;
from TA 205 XI 2. | 85a-94, 96-109. |
| Z | Ni 9946* (<i>ISCT</i> 2 76)
One-column tablet, left edge fragment. | 74-84. |
| A ₁ | Ni 4292 (<i>ISCT</i> 2 18)
One column tablet (74-109), right corner fragment. | 74-81, 109. |
| B ₁ | 3N-T905,206 (<i>SLFN</i> pl. 67)
One-column tablet, lower left corner; from
TA 205 XI 2. | 77-87. |
| C ₁ | 3N-T485 = IM 58803
One-column tablet (79-[109]), upper left corner;
from TA 205 XI 2. | 79-89, 97-106. |
| D ₁ | 3N-T446 = IM 58455
One-column tablet, left edge fragment; from
TA 205 XI 2. | 80-107. |
| E ₁ | 3N-T919,452* (<i>SLFN</i> pl. 67)
Two-column tablet, lower right corner, from
TA 191 XI 1. Compatible with source M. | 84-91. |
| F ₁ | Ni 2725 (<i>SLTN</i> 60)
one-column tablet, upper and right edges
missing. numerals (2, 3) on lower edge. | 89-109. |
| G ₁ | 3N-T518 = IM 58531
One-column tablet (91a,94-109), lower left
corner missing; from TA 205 XI 2. | 91a-109. |
| H ₁ | 3N-T437 = IM 58481
One-column tablet (95-109), complete, oblong
format (61 x 75 mm); from TA 205 XI 2. | 95-109. |
| I ₁ | 3N-T907,271 (<i>SLFN</i> pl. 68)
one-column tablet, lower edge fragment; from
ta 205 xi 2. | 98-106. |
| J ₁ | 3N-T900,22* (<i>SLFN</i> pl. 61)
Very small fragment; from TA 205 XI 1. | 99-104. |
| K ₁ | Ni 4525 (translit. M. Civil)
Small low center fragment. | 59-63, 74-78. |

The Farmer's Instructions

2.1.2. Ur

- A₂ U 7790 (*UET* 6 172; pl. vi-vii.) 1-30, 39-94, 97-109.
Two-column tablet, upper left corner missing.

2.1.3. Miscellaneous or Uncertain Origin

- A₃ W-B 170 (*OECT* 1 32ff., collated; pl. ix-xii.) 1-109.
Four-sided square prism, complete but with the surface damaged in many places. On top:
 den-ki. Colophon:
 |šu-nigin| 60 + 40 + 9
 šu AN-šu-ba-ni²
- B₃ CBS 1354 (pl. v-vi.) see 5.3.1
Sippar? Two-column tablet with Akkadian interlinear translation, left half with upper edge missing and surface broken away in most of the obverse. Minute script, especially in Akkadian lines. From the Khabaza II Collection, accessioned 4/3/1895. Photo of reverse in *Expedition* 5/4 (1964) 34
- C₃ MLC 1359 see 5.3.3
Two-column tablet, large fragment from the right side.
- D₃ BM 80149 (= Bu 91-5-9, 262; pl. xv-xvi) see 5.3.2.
Two-column tablet, lower right corner and most of the right side missing. Column iv was left blank.¹
- E₃ K 6697 + K 8069 (notes by I.L. Finkel) see 5.3.5.1
Two-column tablet, the obverse has the *Song of the Hoe*, the reverse is almost completely missing, but it contains Fl. Despite the Museum siglum, it is a Babylonian tablet, acquired prior to 1870. It may come from Larsa or Ur. The tablet has 10-line marks and the subscript:
 ¹gi₄ 1-ba u₄-ul uru₄-e¹ mu šid-bi 70+[x]
 šu be-lí-ja.
- F₃ VAT 17412 (*VAS* 24 69) see 5.3.5.2
Babylon. Very small fragment from the upper left; reverse blank.
- G₃ VAT 17316 (*VAS* 24 70) see 5.3.5.3
Babylon. Fragment from near the upper left

2. Textual Sources

corner of a two-column tablet; preserved
part of col. iv blank.

H₃ BM 80583* (*CT* 58 77) see 5.3.5.4
Sippar? Oblong tablet (48x77 mm), syllabic.

2.1.4. Tell Haddad

A₄ H 139 (+) H 178 (*AuOr* 9 44) see 5.3.4
One-column tablet with the entire composition.

B₄ H 110 (*AuOr* 9 46) see 5.3.4
One-column, center fragment in very fragmentary condition, including some minute, unjoined fragments.

2.2. ARCHEOLOGICAL CONTEXT OF THE SOURCES

The findspots of the Nippur tablets are known only for those found in the campaigns after 1948. Sources Q and J were found in the 2nd season (1949-50), the first in house D of the TB area, level I 1 (see *OIP* 78 pl. 63 and p. 59, and *SAOC* 44 89f.), the second in a dump in the same area. The rest of the tablets were found in 1951-52 in house F of area TA, level XI, three in room 191 (T, W, and E₁), all the others in room 205. See McCown et al. 1967:64ff. and pl. 71A, and Stone 1987 56ff., for information about the various findspots.²

The Ur tablet (source A₂) was found during the 1926-27 Ur campaign and first reported in Burrows 1927:404 as follows (information in brackets added by me):

In the upper stratum of the residential quarter, above Quiet Street, were found good literary and grammatical tablets - a hymn to Ninurta [U 7790 = source A₂], Sumerian-Akkadian tablets of verbs [U 7791 = *UET* 7 101, U 7794 = *UET* 7 100], most of a large (25 cm high) ten-columned Sumerian vocabulary (e.g. lists of birds and fishes) [U 7792 = *UET* 7 92] and so on. The many business documents (40 to 50) from the same level [U 7787 = *UET* 5 259, and U 7787a to U 7789bb in *UET* 7] contain dates of late Kassite kings ...³

The essential of this report is repeated in the catalogue of objects in *UE* 7 p. 229. However, according to Charpin 1986:31, the field records for U 7790-94 originally listed "room 4" as the findspot, but this notation was later crossed out and replaced by "Quiet Street high level." One may wonder whether this correction was made to harmonize the field records and Burrow's report. A different origin for the Kassite tablets, presumably found in the "high" level, and U 7790-94 would nicely account for the heterogeneity of the group. It is thus possibly that U 7790 was found in house no. 5; see *UE* 7 109, note 4, and Charpin's discussion for details. It is unlikely, in any case, that U 7790 is of Kassite origin. The tablet does have some unusual paleographic features, for instance, the shape of the signs KI and SA. The first is written almost like a sign of the KU family with two completely horizontal wedges at bottom and top (the *UET* 6 copy tends to slant these wedges) and no initial vertical.⁴ The sign SA is written with parallel horizontals looking sometimes like LU as in i 2 (correctly copied), but in many other cases the initial wedge is completely missing, as in the second sign of i 4,

correctly reproduced in the copy. Unfortunately, the lamentable neglect of paleographic studies does not allow a comparative evaluation of these features.⁵

For the finspots of the Tell Haddad tablets, and for references to the little that is known about the archeology of the site, see Cavigneaux and al-Rawi 1993.

2.3. TYPES OF TABLETS

Six ⁶ of the Nippur sources: E, F, I, M, O, and E₁, contained the full composition. All are two-column tablets, except the single columned O. All non-Nippur tablets, except perhaps B₄, had the entire composition. Source A₃ is written on a prism, E₃ in one side of a two column tablet, the rest on two-column tablets.

The single column Nippur tablets with an excerpt of the text have the following contents:

A	1-30	J	29-54	W	[66]-95	G ₁	94-109
B	1-25	L	30-49?	X	79-109	H ₁	95-109
C	1-36	N	32-57	A ₁	74-109		
D	1-30	Q	41-76	C ₁	79-[109]		

Table 2.1. Contents of one-column tablets.

The tablets which do not have the full composition tend to have the text divided into three sections. Sources J and N, however, do not fit neatly into this pattern, and G₁ and H₁ are unusually short, they could perhaps be considered parts of a set of the type represented by W. The most likely explanation for the situation reflected in the table above is that the pupils were expected to daily write exercise tablets of approximately 25-35 lines. Tablets G₁ and H₁, which come from the same room and could very well have been written on the same day, reflect in all likelihood concrete classroom conditions which did not require or allow, regular size exercises. They show as well the lack of consistency, or perhaps better the flexibility, on the partition of a literary text. In any case, terminology such as "three-tablet recension" does not, in my opinion, adequately reflect these fluid conditions, suggesting as it does some kind of formal, "official" partition.⁷ For the rest of the tablets, the start and end points are not known, but the cutting points between obverse and reverse (marked with an * if they are the result of indirect computation) are as follows:

R	*49/50
T	*66/67
U	*60/61
Y	*95/96
B ₁	82/83
D ₁	93/94
F ₁	103/104
I ₁	101/102

Table 2.2. Cutting points in one-column tablets

The nature of sources S, V, and Z, small one-sided fragments, cannot be determined.

2. Textual Sources

Footnotes

- ¹ The tablet was first identified, I believe, by P. Michalowski who kindly informed me of its existence.
- ² I do not unconditionally share the enthusiasm of the author of *SAOC* 44 in trying to see a school in house F. It is not excluded that the tablets found within are intrusive (or "extrusive" in the more common but less exact archeologist's parlance). A single, as yet unlocated, school could have provided discarded tablets to an entire neighborhood.
- ³ From this hoard, only U 7793 = *UET* 7 414, a satirical Akkadian dialogue (*At the Cleaners*), is not explicitly mentioned by Burrows.
- ⁴ Exceptionally there is a KI with slanted wedges in ii 21, third sign.
- ⁵ Photographs of some forty literary Ur tablets, at my disposal, show none sharing the peculiarities of U 7790.
- ⁶ Five, if M and E₁ are part of the same tablet.
- ⁷ A literary composition could be, and actually was, divided in any number of parts larger than daily exercises. The Ur scribe Damiq-ilišu wrote the entire text of *Lahar and Ašnan* on three tablets (*UET* 6 33 to 35) of 62, 61, and 66 lines, respectively. Ten days passed between the time he finished the first tablet and the second; it is unknown, of course, in how many of these days he actually worked. Examples of editions concerned with the partition of the text are Hallo and van Dijk 1968, Heimpel 1981, and Cooper 1983.

3. TEXTUAL RECONSTRUCTION

3.1. METHODOLOGICAL REMARKS

The theoretical background for the textual reconstruction of Sumerian literary texts and the resulting methods cannot be discussed here. A brief justification will be offered only when necessary to clarify a particular step of the reconstruction process. Suffice it to say that the model underlying the transmission of cuneiform texts in the OB period—with, among other peculiarities, oral links and simultaneous writing of multiple copies in schools—is not only very different from what happened, for instance, in a medieval scriptorium, but it is also unlike the copying of tablets in later periods in Mesopotamia itself (cf. *MSL* 14:166ff.). The concepts of authenticity and faithful copying differ from the ones current in subsequent periods and in the classical and biblical traditions, to say nothing of Western editorial practices. Texts that we consider fixed once and for all, for instance letters and court records, were subject in OB times to a surprising amount of alterations. Ur III royal letters were freely paraphrased and interpolated on a scale unusual in the transmission of most Sumerian literary compositions of the time. Copies of court records may include alterations that go beyond simple copyist's errors.¹ In these conditions, and given the enormous gaps in the chain of transmission, the naive search for the archetype is impossible. In the case of Sumerian texts, it is still more important than in other types of textual material to make a rigorous distinction between the *phenetic* (i.e., based on overall similarity) classification of variants and texts, and their *genetic* relationship. This distinction, inspired on numerical taxonomy,² seems to be the only way of making sense of the structure of a multivariate textual corpus, and of avoiding the vague, impressionistic methods now in use among Sumerologists. It is advisable therefore, at least in the case of FI, to limit the study to the material at hand, and to delineate as much as possible the groups of sources and the "distance" between them, leaving aside for the moment genealogical preoccupations.

The present edition limits itself to try to establish the state(s) of the text of FI current in Nippur until the first quarter of the XVIIIth century B.C. Only in the exceedingly few places where the Nippur evidence is insufficient, are the Nippur sources (henceforth designated as NFI) supplemented by outside ones. The rest of the sources is treated separately. The textual matrices, the critical apparatus, and the separate editions of non-NFI tablets (see 5.2) provide all available information on all known states of the text. The choice of the variants admitted to the main text is, up to a point, arbitrary and meant to provide a readable and quotable reconstruction. Unless grammatical correctness, scribal habits, or other external criteria dictate otherwise, the alternate variants, as long as they come from NFI sources, simply represent

different states of the text (not necessarily successive ones) and are to be considered of similar value, given our present knowledge. It is fair to underline that the great majority of variations do not affect meaning and thus do not need to be taken into account when using the text as a source of agronomic history.

3.2. THE NIPPUR TEXT

3.2.1. Text parameters.

The composition can be reconstructed almost completely from NFI sources; their *coverage* (number of sources per line) of the text is modest but relatively uniform (table 3.1, where s = sources per line, and f = frequency, or number of lines with a given number of sources):

Table 3.1

s	f	sf
2	2	4
3	17	51
4	16	64
5	24	120
6	14	84
7	10	70
8	14	112
9	6	54
10	4	40
	107	599

This gives an average of $107/599 = 5.6$ sources per line. This parameter, of no great significance when considering FI in isolation, is useful for the evaluation of textual stability and for the history of the text of FI within the whole of Sumerian literature. The *stability* of the text is the ratio between the total number of columns (C) in the text matrices (which in practice is almost equal to the number of cuneiform signs) and the total number of variations (V);³ in other words, the ratio between the number of possible and actual variations, and therefore the probability of the occurrence of a disagreement in a particular place of the text. In table 3.2, the rows give the number of columns (c) per line, and the columns the number of variations (v) per line;⁴ the number of actual cases is entered at the intersection. Thus, for instance, there are 17 lines which have 11 columns/signs in their textual matrix, of these three have no variations, five have one, five have two, two have three, and two four; these lines have a total of 187 columns/signs, and contribute 17 variations. The bottom rows give the total number of cases for each number of variations; there are, for instance, 14 lines with three variations, with a total of 42 variations for the whole composition. In NFI there are thus 1287 columns⁵ of text and 166 variations and the index of *variation* (or stability) is therefore $166/1287 = 0.1298$. The total variability is also function of the number of sources and tends to increase with their number. If s = sources per column, the approximate relation $V/c = 0.024s$ holds for the compositions so far studied.⁶ The text parameters of FI can be compared, for instance, with *Curse of Agade* where $s = 10.64$ and $V/c = 0.2658$, or *Enlil and Ninlil I* (OB sources only) where $s = 3.95$ and $V/c = 0.0957$, to mention just two compositions with a "normal" degree of variability.

3. Textual Reconstruction

Table 3.2

	0	1	2	3	4	5	6		
6	3							3	18
7	2	3						5	35
8	5	6	1					12	96
9	4	2	2	2				10	90
10	2	5	4	0	1			12	120
11	3	5	5	2	2			17	187
12	0	5	2	4	0			11	132
13	0	4	1	2	0			7	91
14	1	1	4	1	0	0	1	8	112
15	1	4	1	1	0	0	1	8	120
16	1	1	1	0	0	1	0	4	64
17	0	2	3	0	0	0	1	6	102
18	0	1	0	1				2	36
19	0	0	1	1				2	38
20	1	0	0	0				1	20
21	0	1						1	21
	24	39	25	14	3	1	3	110	1287
	0	39	50	42	12	5	18	166*	

* the sum of the last row = total number of variations

3.2.2. Grouping of Sources

In the case of NFI, the short length of the text of FI and the fragmentary condition of the sources severely curtail the possibility of groupings. For the first twenty-five lines of FI sources A (lines 1-17, 23-25), B (1-25), C (1-8), D (1-3), E (1-17), and F (15-25) are available. Source D can be immediately discarded because it covers only lines 1 to 3. Some of the sources (e.g. F) have only part of the lines preserved. All the variations, except 4.1, 6.1, and 10.3 (non-standard writings) and the omission of lines 18-22 by A, are almost impossible to qualify of correct or incorrect (although one could imagine that a carefully written original would not have omitted the determinatives in 9.2, 17.1, and 23.1). Since, however, orthographic variants, under certain conditions, can indeed help in grouping sources (see below), table 3.3 gives the disagreements between them, first for lines 1-8 (sources A, B, C, and E), and then for the whole section of lines 1-25 (same sources plus F). The asterisks indicate that the sources do not overlap to any significant extent. It is obvious that there is no significant clustering of sources. A and B show strong disagreement between them and individually against C.

Table 3.3

lines 1-8						lines 1-25					
	A	B	C	E			A	B	C	E	F
A	-					A	-				
B	5	-				B	1	-			
							7				
C	5	3	-			C	6	3	-		
E	0	0	4	-		E	3	4	4	-	
						F	1	2	*	*	-

No meaningful observations are feasible until the last twenty lines when a relatively large number of tablets from TA 205 becomes available. These lines contain the following relevant variations:⁷

Table 3.4

1	(89)	F -ab- : YE ₁ -an-
2	(95)	E -da- : WD ₁ -ø
3	(97)	G ₁ H ₁ -ba : EFF ₁ -ø
4	(97)	EFF ₁ esir : C ₁ G ₁ H ₁ esir
5	(98)	EYG ₁ H ₁ I ₁ -da- : FF ₁ -na-
6	(99)	F -a- : EYC ₁ F ₁ G ₁ H ₁ -ø-
7	(99)	F ₁ -ne : EYF ₁ G ₁ H ₁ I ₁ -ø
8	(99)	EYF ₁ -en- : FG ₁ H ₁ -ø-
9	(100)	EF ki : C ₁ D ₁ F ₁ G ₁ H ₁ ø
10	(100)	F -ne- : C ₁ D ₁ F ₁ G ₁ H ₁ J ₁ -ni-
11	(102)	E -è- : FC ₁ G ₁ H ₁ J ₁ -là-e-
12	(103)	E -bu- : FYG ₁ H ₁ -ba-
13	(104)	EF -àm- : C ₁ D ₁ F ₁ G ₁ H ₁ I ₁ J ₁ -a
14	(104)	EC ₁ D ₁ F ₁ G ₁ H ₁ I ₁ J ₁ -àm : F -ø
15	(105)	E -ni- : C ₁ D ₁ F ₁ H ₁ I ₁ -ø-
16	(105)	FG ₁ H ₁ -a- : E -ø-
17	(106)	E -èn : F ₁ G ₁ H ₁ I ₁ -ø
18	(108)	FG ₁ -ga : EH ₁ -ø

The sources above belong to three groups of tablets:

- (1) from TA 205 (X, Y, B₁, C₁, D₁, E₁, G₁, H₁, I₁, and J₁), given in *italics* above,
- (2) from TA 191 (W)
- (3) from previous Nippur excavations, findspots unknown (E, F, Z, A₁, and F₁).

Since the tablets found in TA 205 were discarded from a school in the area (one may surmise that its students had been practicing writing the final part of FI at the time) the overwhelming agreement of the tablets of group (1) is not in itself surprising. What is remarkable is that they show such a close agreement in the type of variations that are typically dismissed by editors of Sumerian texts as insignificant and unreliable. Many of the variations involve omission or alternation of admittedly unstable elements (-a or -àm : -, -en- : -ø-, -bu- : -ba-, -ne- : -ni-, etc.), esir : esir is a logographic variation, and some variations are likely to be single-source errors (e.g., no. 102). The only variation of significance is the omission of ki in line 100 which divides the sources in two groups še ki-ús (TA 205) : še ús (rest of NFI, A₂ and D₃). In no. 17, the form most frequent in the texts is u₄-te-en (E) rather than u₄-te of the TA 205 group and F₁. F₁ is closer to the TA 205 group than the rest of NFI. The position of TA 191 cannot be ascertained for lack of parallel passages. The conclusion should be, in any case, that although minor orthographic variations are not well suited for genealogical classification since the same variant can appear easily in different places and times, they may define source groups and cannot thus be disregarded. They have a certain consistency and keep their modest significance within small segments of the text tradition.

3.2.3. The Ur text (A₂) and the prism A₃

Since these two non-NFI sources are incorporated into the main text, for the reasons given in 1.6, they are here examined apart from the rest of non-Nippur texts. The following list gives

3. Textual Reconstruction

the variations sufficiently characteristic to establish the relationship between these two sources and NFI.

Table 3.5

		Nippur	A ₂	A ₃
1	(1)	-ra : ru	-e	-e
2	(3)	-ù-dè	-ù-dè	-ø-dam
3	(7)	suhúb	suhub	suhub
4	(10)	-ø-	-ab-	-ab-
5	(12)	-ba	-bi	-bi
6	(12)	-e	-la	-e
7	(13)	-e	-gá	-e
8	(15)	-ba : -bi	-ø	-ø
	(16)	-a	-ta	-ø
9	(18)	-ta	-e-ne	-e-ne
10	(19)	šum-me	ù-šum-me-níg-ak	šum-me-ak-a
	(19)	si-sá	sag--ús	sag--kéš
11	(21)	KA	KA-di	káb-di
12	(22)	da—gál	é—gi	da—gál
13	(28)	omitted	present	present
14	(29)	-ø	-àm	-àm
15	(41)	uru ₄ ru	uru ₄ ru	dib-bé-
16	(45)	ab-sín	absín	ab-sín (45 and pass.)
	(47)	dúr : BU	dúr	BU
17	(49)	-ø-	-ø-	-ra-
18	(51)	gín	gín	silà
19	(52)	a-tur	é-tùr	a-tùr
20	(55)	ì-uru ₄	uru ₄ ru.ab	uru ₄ ru.ab
21	(56)	-ø-	-ø-	-a-
	(57)	gú/gu ₄ -tu-lu:gu ₄ -ku-ru	gu ₄ -kur ₅	dur-tu-lu
22	(59)	ø	absín gilim-ba etc.	ø
	(69)	SU : SA	SU	SU
23	(70)	-ba	-bi	-bi
	(71)	an-sù	àm-si	ab-si
24	(71)	-ná-aš	-na-aš	-ná-šè
25	(74)	ur ₅ -gúr	ur ₅ -gúr--ak	ur--gúr
	(77)	-Dl	-tag	-x (neither TAG nor DI)
26	(80)	-e	-na	-na
27	(93)	present	omitted	omitted
28	(95)	-ur ₅ -	-ur ₅ -	-ùr-
29	(99)	-ø	-bu-uš	-bu-uš
30	(102)	u ₄	lú	u ₄
	(102)	-e(5) : -è(1)	-e ₁ l-dè	-è
31	(102a)	omitted	present	omitted
32	(103)	-ø	-lá-e-na	-ø
33	(103)	-ga	-tuku	-ka
34	(104)	2	3	2
35	(107a)	omitted	present	omitted
36	(108)	dumu	engar	dumu
37	(109)	engar	en dumu	engar

The leftmost number is a variation number to help in the calculations, the following number is the line number. The variations without number were not used, they are three-way variations or too indefinite to be useful. The distance between sources is here computed from the differences between NFI and a hypothetical source X which has (a) all the readings common to the three sources, and (b) the readings common to A₂ and A₃, but not in NFI. The tabulation of differences, following several different criteria, is given in table 3.6.

Table 3.6

	A ₂	A ₃	X
Total variations	10	6	15
Random sample	5	2	8
"Significant" vars.	4	1	5
Orthographic vars.	2	3	6

The resulting distances are given, after normalization on an arbitrary scale, in fig. 3.1. It shows that X differs considerably from NFI and that A₃ is closer to X than A₂.

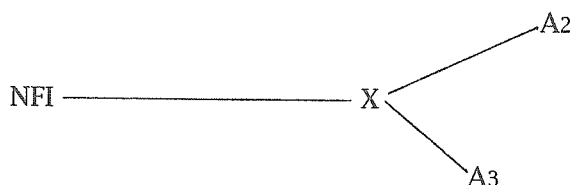


fig. 3.1

3.2.4. Types of variations

A complete typology of variations, along the lines of the old one offered by Kramer 1940:8ff., but not necessarily following his pattern in all detail, is an absolute need for Sumerian textual criticism. Each type has its own history, and associated with it a given probability of appearing in a text (very high, for instance, for -n- : -ø-). It has still other relevant characteristics such as directionality (assuming that gašam-ta is more original than gašam-e-ne in line 18, there are few chances that a later copy will have the former), and likelihood of being corrected (any scribe could have changed the absin of A₃ back to ab-sín). Such a study cannot rest on a single composition and is too complex to even be outlined here. The following is a sampling of idiosyncratic scribal errors, unlikely to be frequently found in other literary compositions. In line 6, A₃ offers en-nu-un-nag, for en-nu-un-ak, which, unless one reads na₈ and a₅, would imply a confusion between "velar nasal" and palatal stops in final position. In line 34, C has hé-ha-za-ab, a hybrid of optative and imperative. Source J writes sín-ab for ab-sín in line 45, and F writes si-sá—sá in line 58. In line 103, the reading geštú-ka of A₃ can very well be an example of the sporadic -ka for -ga⁸ but can also be a haplography, geštú-ka < geštú-tuk-a, in which case A₃ would agree with A₂ rather than with FNI.

3.2.5. Remarks on the present edition

The text is given in two forms. The first one (chapter nine) gives the text in the form of *textual matrices* (a form similar but not identical to the systems known as "score" and "Partitur") with the rows representing the sources and the columns the words (or parts thereof). The difference between textual matrices and traditional scores is that the first has the sources formally arranged in columns and that every intersection in the matrix should be filled with the appropriate symbol, against the more free format of the second. An

3. Textual Reconstruction

inconvenient limitation is that complicated variations extending over several columns may need an ad hoc treatment. For the conventions to represent the status of each element in the various sources, see the opening remarks to chapter nine. These conventions of the matrix system, which depart from the current ones and will not necessarily win right away the approval of all colleagues, allow, not only a more strict formalization of the treatment of the text, but also, and not unimportantly, make it possible to automatize, by the use of very simple algorithms and programs, the monotonous task of analyzing variations. Since the author believes that the first responsibility of an editor is to provide the reader with the best text available under the circumstances and that scores without the reconstructed lines are inadmissible, and strongly disagrees with the ones who are content "with the entire analysis [being] left to the reader of the score",⁹ the text is given in a second form (chapter 5.1) intended to be read and quoted. It consists of the text with the variants which in the editor's opinion have the better chance of being correct,¹⁰ accompanied by a critical apparatus of the positive type. It consists simply of a sorted list of all the variants of every variation, i.e., represents a column of the text matrix. One of the variants is the one accepted in the main text. "Subtracting" this variant from the text, it can be replaced by any other variant of the textual note. It thus contains all the information of the matrix, except the absence of a source, in a manner that makes explicit the source groupings and the type of variation. As a side benefit, positive textual notes do not need to be changed if the editor, progressing in his study of the text, decides to change his choice of variants.¹¹

Footnotes

- 1 I am thinking, for instance, of the "Murder trial," see Jacobsen 1959.
- 2 For a theoretical treatment, see Sneath and Sokal 1973.
- 3 As used here, *variation* is a matrix column in which the sources differ, i.e., the place where disagreement occurs, while *variant* designates a particular form within a variation.
- 4 Note that $V = \sum f_v$ and $C = \sum f_c$, with f representing the frequency of occurrence (i.e., number of cases).
- 5 Note that there is an additional "column" for each line of text which gives the lines presence or omission in the various sources. The present calculations have *not* been adjusted for it. The determination of what constitutes *one* variation is not easy. In mu-e : me-e : me-, is there one variation or two (mu- : me- and -e- : -ø-)? A reader can easily arrive at a variation count that differs from the author's. See Dearing 1974:25ff. for a detailed discussion.
- 6 Further progress in textual studies may suggest a modification of what is for the moment a rough approximation. Gragg, 1972:206 is so far the only study of variability in Sumerian texts. Note that he operates with full lines, rather than with columns of textual matrices.
- 7 The single-source errors of omission of F: <še> 101, and <ki> 103 are ignored.
- 8 As for instance in en-e ʾnimgir-l-a-ni zi-ka (for zi-ga) ba-ni-gar in *Luglabanda* 1:14 according to *TMH* NF 3 10).
- 9 Opinion expressed, without disavowal, by a reviewer in *WO* 16 (1985) 160.
- 10 Some of them may be, in the present state of the art, of comparable value to the ones relegated to the textual notes.
- 11 No hand copies of the sources are included. The editor believes that whenever photographs of quality can be used they should. A copyist cannot copy a text without understanding it, needs technical skills denied to many, and there are forms of surface erosion on the tablets that cannot be copied in a line drawing. Tablets with standardized sign forms and clearly written, e.g., the ones from Kouyunjik, may be copied with little loss of information, but most cuneiform tablets cannot. The sad state of cuneiform paleographic studies can be directly traced to the preference of copies over photos. The *ductus* of an individual scribe, so useful to make joins and to recognize tablets from the same hand or school, is always completely lost in the copies. In the Kouyunjik tablets the column lines are at times made with the stylus and at times with a string. This information, which can help in making joins, is lost in the copies.

4. GRAMMAR AND STYLE

A comparative study of the grammar and style of the various Sumerian literary texts can not only substantially contribute to the understanding of their contents, and illuminate the scribal habits in a given place and time, but can even help to precise their origin and history. In the absence of a sufficiently detailed comparative frame of reference, this section points out some of the points in which FI differs from other compositions. As a rule, these remarks are limited to the Nippur version of the text. Peculiarities of non-Nippur sources are discussed in their respective editions (5.3).

4.1. GRAMMAR: SYNTAX

4.1.1. Main Clauses

4.1.1.1. *Indicative*

This label is to be taken here in the sense of finite verbal forms without modal prefix, and includes forms with suffixed -a. Out of 94 main clauses, only 15 have the verb in the indicative, the rest are imperatives (37), or have modal prefixes: optative (32) or prohibitive (10). This restricted choice of forms is a natural consequence of the preceptive tone of the text. About one-half of the indicative verb forms have the relatively unusual vocalic prefix a-.¹ Two types of occurrences must be distinguished: a-ra- and a-ab-. In the first case, more frequent, (lines 6, 13, 23 [var. a-ab-], 25, 28, 63) the vocalic prefix, presumably i-, is assimilated to the vowel of the following dative infix -ra-, and thus in a-ra- there is no genuine prefix a-.² The choice of a vocalic prefix before the dative infix -ra- is not the usual one. Elsewhere, -ra- is normally preceded by mu-, which becomes ma- by vowel harmony; unless mu- is preceded by a modal infix, in which case it retains the vowel u. Thus in the *Debates* only ma-ra- (< mu-ra-) is found, except for a couple of cases of mu-ra- in *Winter and Summer*. The compositions *Edubba* B and *Dialogues* 1 to 3 agree with FI by using a-ra-; but *Edubba* C and, occasionally *Dialogues* 1 to 3, use e-ra-. After modal prefix all these texts use -mu-ra-, excepting, of course, for a few instances of ga-ra-. In the case of a-ab- (lines 23 [with var. a-ra-ab-], 25, 47, and 69?), there is less comparative material. This prefix chain is found in *Edubba* B and R, and in *Dialogue* 5, but it is always rare and often has a variant ab-.³ It is unclear at present whether the preference of a- forms over i-forms in OB literary texts is a local or a diachronic feature. The composition *Edubba* B was almost certainly written in Ur. Whether this city is also the place of origin of FI, and of *Dialogues* 1 to 3 as well, remains uncertain. The

rest of main clauses of FI have the prefixes *mu-* (lines 1, 57) or *ba-/bí-* (lines 24, 29, 71, 73). There is only one instance of a copulative clause (line 26).

4.1.1.2. *Optative Forms*

More than one-half of the occurrences are of the form *ha-ra-ab-*, with an infrequent variant omitting *-ab-*, or with only *ha-ra-* attested. In two cases (lines 51 and 104) *ha-ra-* has a variant *ha-ra-an-* in non-Nippurian sources (*A₂* and *A₃*), and in two cases (lines 84 and 89) the Nippur sources hesitate between *-an-* and *-ab-*. Only once (line 61) is the locative infix inserted in the chain giving *ha-ra-ni-ib-*. Note that the following line is completely parallel, and 62 has only *ha-ra-*. Can a chain of morphologically and syntactically identical predicates have some of their morphemes expressed only once?⁴ The clauses with *ha-ra-ab-*, when there is no explicit agent, have to be translated into English as statives or passives (this does not imply in any way that the Sumerian forms have to be considered "passives"!). After modal prefix, the conjugation prefix before *-ra-* is *-mu-*, as it is the rule elsewhere in the corpus. There are four *hu-mu-ra-* forms; in lines 77 and 78 there is an explicit animated agent, so that in the two verbs of line 21 one can very well assume an indefinite, implicit agent ("someone"). In this line, the implication of this assumption would be that the gauging of the measuring baskets, and the reinforcing of its sides to keep the measure true, has to be performed not by the farmer himself but by someone else, perhaps in authority. In lines 77 and 78 the verbs follow the present-futur (so-called *marû*) pattern and thus are the only h-forms in the text that may be considered subjunctives.⁵ The rest of h-forms have the prefix *hé-(en)-*, with the infix *-dè-* in lines 45 and 99.

4.1.1.3. *Prohibitive Forms*

The forms with *na-*, the negative counterpart of *ha-*, are all formed, as expected, according to the present-futur conjugation and, in contrast to *ha-*, only one has the dative infix.

4.1.1.4. *Imperatives*

The imperatives outnumber the optatives, and the great majority follow the pattern *V-a-ab*, with only three with the locative-terminative infix *-bí-ib* and *-e-eb* (lines 32, third verb, 66, and 93) and four with the locative *-ni*. The variant *-ne* in lines 44f. of *A₄* establishes, perhaps, the reading as *-ni* rather than *-i*; or does *A₄* have to be read *-bí*? see Civil 1976a:90.

4.1.2. Subordinate Clauses.

4.1.2.1. *Temporal Clauses*

The temporal clauses in FI constitute almost the totality of subordinate clauses and offer a great variety of forms.

(1) *u₄ ... -(a)* "(at the time) when ...": lines 5, 67, 69, 71, 72, 100, 102, and 105. The omission, at least in writing, of the suffix *-a* is obvious in 67 (*-diri* and not *diri-ga*) and in 102 one would expect *-zu-a* rather than *-zu*.

4. Grammar and Style

(2) u_4 ... -a-ta "after (the time) when ...": lines 38 and 64. The reading -ra-ta of A_3 , at the end of line 38, may be a hybrid form inspired by the allophone -ra of -ta, as in um-ma-te-a-ta/ra.

(3) ... -a-ta "after ...": line 85. For subordinates with -ta in general, see Gragg 1973:124ff.

(4) $\dot{u}$ -VP "(and) having ...-ed" (preceding a main clause): lines 8 (twice), 30, 31, 33, and 35. All have the conjugation prefix -bí-. In general, locative and locative-terminative infixes are relatively more frequent in $\dot{u}$ -clauses than in main clauses. These infixes refer to a discourse location, to the sphere of all the actions preceding the one of the main verb, rather than to a physical location.⁶ The instances of $\dot{u}$ -clauses in FI, however, do not apport any decisive confirmation to this interpretation since all their verbs, with the exception of zé, take elsewhere the locative-terminative infix.

(5) ...-a-gin₇ "as (= when) ... ": line 81, 107. It is not clear whether the phrases involved should be considered nominal or verbal.

(7) en-na ...-a "until, as long as ... ": line 13. It is assumed here that en-na refers to the verb at the end of the line rather than to al-šeg₆-šeg₆-e-da (see commentary to line 13). This is the way it was understood by the Akkadian translator in B_3 .

4.1.2.2. Final/Goal Clauses

VP-(ed)-a-poss. pron.-dè: "when you (have to) do" These clauses have two subtypes, one with the infix -ed- (or -d-) in lines 2, 41, 48, and 74, the other without it in lines 4, 88, 95, 96, and 98. In the first case, the infix is identical to the one found with finite verbal forms indicating a certain type of obligation, completely different from the -dè which is a postposition added to a subordinate clause and indicates time, relative to the main clause, as in the constructions above. The postposition -dè, in a subordinate clause and without possessive pronoun, indicates purpose with verbs of movement or intention and is homologous to the terminative postposition of the nominal phrase. In other words, the verbs which express the goal with -šè, if it is given in a nominal phrase, express it with -dè when it is given in a verbal phrase. For instance, é-šè ... gin "to go home," but é ba-e-dè ... gin "to go to divide a home (estate)," or kur-šè geštú gub "to have plans about a foreign country," but mu-bi šu-ur-dè geštú gub "to plan to erase the name." This affix -dè is likely to be identical to the -ed- infixed to finite verbal forms, see final clauses, below.⁷ The forms with infixed -ed- (first subtype, above) are infrequent in the general corpus of Sumerian texts, they represent barely 4% of the instances of -dè and -ed-, while the forms without infix represent close to 30%. Thus in FI the forms with -ed- are relatively numerous: four, against five times without; this is due again to the didactic nature of the text.

4.1.2.3. Final Clauses

There are clauses of this nature, described above in 4.2.2 a5, in lines 3 and 72.

4.1.2.4. Conditional Clauses

There is a single example of a tukum-bi-clause, in line 52.

4.1.2.5. Relative Clauses

A clear example of them is found in line 103. Some participial constructions could be considered relative clauses (e.g., line 104).

4.2. SPECIAL CONSTRUCTIONS

4.2.1. The Dative Infix

The great majority of optative clauses, over one third of the indicative ones, and even one prohibitive clause, have the 2nd person dative infix -ra-. No other known Sumerian text uses it in such a systematic way. It has to be considered as a dative of "interest", in the sense that it is not required by the semantics of the verb and it simply indicates that the action or event somehow result in an advantage or profit for the farmer. While some Romance languages, and German, easily accomodate such datives, they are extremely awkward to render into English. After considering and rejecting some circumlocutions, they have been left untranslated.

4.2.2. Numbers and Measures

Literary texts constantly hesitate between the constructions number + measure + commodity, and commodity + number + measure. This can be seen in 1 gín še (sources FJOQ) : še 1 gín (I and non-Nippur sources) in line 51; 1 sila še (OQTW) : še 1 silà (E) in line 73; and, without measure, in ab-sín 8 (FJOR) : 8 ab-sín (Q) in line 46.⁸ Examples from other compositions are 10 kù ma-na (D) : kù 10 ma-na (CJ) in *Edubba* D 42 (see also line 44), and 1 silà še (GK) : še 1 silà (H) in D 5:54. There are no variants, despite the relatively high number of sources, in *Curse of Agade* 176ff. for stylistic reasons. All lines there have the commodity first, because it is the position of syntactic emphasis or focus. For obvious convenience in accounting, administrative texts have always the number first. In the ordinary language, however, both constructions seem to have been considered acceptable.

4.3. WRITING

There is nothing unusual concerning the writing system, except perhaps the unusual sign TAK₄.IM in line 76. It appears from the textual variants in lines 80 and 86f. that še before garadin and zar has to be considered a semantic determinative.

4.4. STYLISTIC REMARKS

The text is a didactic one with a very simple, direct, and unornate style. It eschews all the characteristic features of elevated literary style such as expansions with parallelism, or the aesthetic comparisons given by the gin₇-clauses. The comparison to a reed mat, in line 69, is purely descriptive of the physical aspect of the growing crops, not a poetic image. As far as one can tell, given the present imperfect knowledge of Sumerian metrics, it is not written in verse. It is thus incorrect to consider FI a poetic work. The comparison with Cato's work (1.2) is a very apt one.⁹ The present work is as far from Sumerian poetry as Cato is from Vergil.

Footnotes

¹ Discussion in Thomsen 1984:166ff. See also Poebel 1931:29f.; Falkenstein 1957-58:95, 5a; Civil 1960:65; Zhi 1989:68f.; for the OB grammatical texts, see Black 1984:43ff.

² From an examination of the Sumerian corpus, it is most unlikely that, in OB, a-ra- could come from ù-ra-; this observation has a certain import for the interpretation of lines 6f.

³ Proverbs are not included here. The prefix ab- is very frequent (52 times) in them, while a-ab- is (7 times). In the rest of the corpus, one occasionally finds paragraphs where ab- dominates, e.g., *Inanna and Ebih* 112-15 (with no var. a-ab-) or *Gilgameš and Enkidu* 253, 256, 272, 274 (with twice the var. a-ab-, and once ì-).

⁴ As is the case with the postpositions in nominal phrases.

⁵ Usually mislabeled "affirmatives" or the like; see, e.g., Thomsen 1984:205, or M. Lambert 1961:35ff.

⁶ See Falkenstein 1931:58¹. There is no reason anymore to doubt that -ni- is in these cases the locative infix, but B. Landsberger's observation, reported by Falkenstein, on the sequence of infixes is still valid. Compare also the pattern given in Civil 1960:69.

⁷ There has been a considerable amount of discussion among Sumerologists about these infixes, bibliography in Thomsen 1984:131.

⁸ Note that the frequent construction NP *n* + poss. pronoun "the *n* NPs" is determinate and contrasts with NP *n* "n NPs."

⁹ The similarity extends to the stylistic alternation of imperatives and subjunctive/optatives.

5. THE TEXT

5.1. NIPPUR TEXT

- 1 u₄-ul-uru₄^{ru} 1¹ dumu-ni na mu-un-de₅-ga-àm
- 2 a-ša dìb-bé-da-zu-dè
- 3 e pa₅ du₆ du₈-ù-dè¹ igi kár-kár-ab²
- 4 a-ša a-dé-a-zu-dè¹ a-bi šà-ba² nu-il³
- 5 u₄ a¹-ta im-mu-e-a-e₁₁-dè-a²
- 6 a-ša ki-duru₅-bi en-nu-un ak-ab¹ ki-še-er a-ra-ab-tuku
- 7 gud suhúb¹ gír na-ra-ab-zukum-e
- 8 ú-sag₁₁¹-bi ù-bí²-zé a-ša ki-gar ù-bí-dug₄
- 9 10-àm¹ urudagín-sal² 2/3 ma-na-ta³ sá-a-ab
- 10 gišal-šub¹-bé umbin-bi² ha-ra²-šú-šú³ sa ha-ra-ab-lá-lá
- 11 ki ka-sal-la-bi ú-tag ha-ra¹-tag-tag
- 12 gú a-ša-ga ub-da-4-ba¹ gišal-e² ha-ra-nigin³
- 13 en-na a-ša-ga al-šeg₆-šeg₆-e-da¹ téš a²-ra-ab-si-ke³-a
- 14 giššu-kár-zu sa ha-ra-ab-gi₄-a¹
- 15 giššudun-zu á-šita₄-a-bi¹ ha-ra²-kéš
- 16 kušusàn gibil-zu giškak-a¹ ha-ra-ab-lá
- 17 kušusàn sumun-zu giš¹ mud lá-lá-a²-bi
- 18 dumu gašam-ta¹ dùg² ha-ra-ab-ak-eš³ 4
- 19 urudagín urudabulug urudašum-me¹ giššu-kár-zu [á(?) -z]u si ha-ra-ab-sá-e²
- 20 kušsag-kéš kuš¹ bar-e₁₁²-dè kuška-dù³ kušusàn sag-zu hé-ha-za
- 21 gi₁ba-an-du₈-zu KA¹ hu-mu-ra-ab²-ak á kalag-ga hu-mu-ra-an³-ak-e
- 22 á-áš a-ša-ga-zu da hé-en-gál¹ kin-zu igi kár-ka-ab²
- 23 gud giš¹ apin gud diri-ga² a³-ab-tuku-a
- 24 gud gud-da dur bí¹-ib-tu-lu-a²
- 25 gišapin-bi gišapin-na a-ab-diri
- 26 [éš-gàr] gišapin 1-e¹ 180² iku-àm³
- 27 za-e 144 iku¹ giš² dù-ba³-ab
- {28 [á?] šà-húl-gin₇ a-ra-ab-dím-e²}
- 29 18 iku-ba 0.3? še gur¹ ba-an²-gá-gá
- 30 usu giš¹ apin 1-e² a-ša gišbar-dil-bi ù-bí-ak
- 31 gišbar-dil-bi¹ gišapin-túg-sig₁₈ ù-bí-ak² túg-gur³-ra-ab
- 32 giš ùr-ra-ab¹ giš-gi₄-a-ab giš peš-bí-ib
- 33 ki-šúr-bi giš¹ níg-gul-ta giš² KAK.UD-aš³ ù-bí-ak
- 34 gišmud giš¹ níg-gul-zu sag-za² hé-ha-za³ níg al-di-še na⁵-du-un

1 Old-Man-Tiller instructed his son:
2 When you have to prepare a field for irrigation,
3 inspect the levee, canals, and elevations which have to be opened.
4 When you let the flood waters into the field, its waters should not rise there too high .
5 At the time the field emerges from the water,
6 watch the spots with standing water in the field, it should be fenced.
7 Do not let the cattle herds trample it (anymore).
8 After you cut the weed growth and establish the limits of the field,
9 level it many times with a thin hoe (of a weight) of two-thirds of a mana.
10 Let a flat hoe erase the oxen tracks, let (the field) be swept clean.
11 A maul should flatten the spots (with traces) of the (old) furrow bottoms.
12 The hoes should go around the four edges of the field.
13 It should be smoothed out until it dries up well.
14 Your implements should be ready.
15 The parts of the yoke should be assembled together.
16 Your new whip should hang (ready) from a nail.
17 The handle bindings of your old whip.
18 should be repaired by artisans.
19 Your tools, adze, drill, and saw should be in good order.
20 Let braided thongs, straps, leather wrappings, and whips be firmly attached.
21 Let your sowing basket be gauged, its sides made strong.
22 All necessary things for the field should be at hand. Carefully inspect your work.
23 The plow oxen will have backup oxen.
24 The attachments of ox to ox should be loose (enough).
25 Each plow will have a backup plow.
26 The assigned task for one plow is 180 *iku*,
27 (but) you, (re)build the implement at 144 *iku*.
{28 [The work] will be pleasantly performed for you}
29 180(?) *sila* of grain will be spent on each *bur*.
30 After working one plow's area with the *bar-dil*-plow,
31 (and) after working the *bar-dil*-plow's (area) with a *tug-sig*-plow, till it with the *tug-gur*.
32 Harrow once, twice, three times.
33 When you flatten the stubborn spots with a heavy maul,
34 the handle of your maul should be firmly attached, otherwise it will not
perform as needed.

- 76 TAK₄IM 1-e ù¹ lú zar² kés-da 1-àm³
77 ù lú 1-e igi-ni-šè zar¹ hu-mu-ra-ab-sá-e²
78 3-àm hu-mu-ra-ab¹-gur₁₀-gur₁₀-re²
79 lú še de₅-de₅-ga¹ še šu-huz² na-an-ak-e
80 še¹garadin-e² še na-an-si-il-si-il-le-e-ne³
81 kin u₄-da-zu u₄ tur-ra¹-gin₇
82 usu di₄-di₄-lá-zu-ne¹ ù lú še de₅-de₅-ga-zu²-ne
83 šid¹-bi du₆-ul-la²-ab zar-re-és³ ná-a-ab?
84 kin-zu mí-zi ha-ra-ab¹-dug₄²
85 dabin¹ še sumun-e² tuku-a-ta
85a ka¹-gu₇-zu-šè² lú še giš na-ab-ra-ra-an
86 še²zar-ra ne-ha-ab
87 sizkúr še¹ zar-ra u₄-šú-uš²-e ha-ra-ab³-dug₄
88 u₄ še al-e₁¹-dè-en-na-zu-dè¹ ²
89 lú še lá-lá¹-zu-ne 30 gín ha-ra-an²-ak-ak³
90 kislah-zu ki-gar dug₄-ga-ab¹
91 har-ra-an-gur-zu si¹ sá-sá-ab
91a giš¹šu-kár-zu ha-ra-¹x-x¹
92 giš¹mar-gíd-da-zu si ha-ra-ab-sá¹
93 gud giš¹mar-gíd-da-zu mur gu₇-bí-ib¹
94 su₇ dug-a-zu u₄ 5-àm ha-ba-ne-ha¹
95 su₇ bad-rá¹-zu-dè níg-ur₅²-ra dug-ni
(96 u₄ še bad-rá-zu-dè¹)
97 zú giš¹bad-rá¹-zu kuš lá-lá-bi² esír³ ha-ra-ab[?]-sub₆-sub₆
98 gud dūr-dūr-ru-da¹-zu-dè
99 lú še bad¹-rá²-zu³ usu[?] hé-en-dè-gub?
100 u₄ še ki¹ ba-e-ni²-ús-sa³
101 sizkúr še¹ nu-nir-ra dug₄-ga-ab
102 u₄¹ še al-lá-e-na²-zu³
103 lú še ki¹-ta al-gub-bu-a² lú geštú-ga³ gub-ba-ab?
104 lú še DU-a¹ 2²-àm ha-ra³-gub-bu-uš⁴
105 u₄ še ba-e¹-nir-ra² gidru³-šè ná-a-ab?
106 sizkúr á¹ u₄-te-en² gi₆-ba dug₄-ga-ab
107 u₄ sa₉-a-gin₇ še búr-ra-ab
108 na-de₅-ga¹ ^dnin²-urta dumu³ ^den-lil-lá-ke₄⁴
109 ^dnin-urta engar zi¹ ^den-lil-lá zà-mí-zu dùg-ga-àm

5.1. The Nippur Text

- 78 Three men should harvest it for you:
76 one to cut the grain, one to tie the sheaves,
77 and one before him should apportion the sheaves.
79 The ones who gather the barley should not "bruise" the grain.
80 They should not scatter the grain in the stacks.
81 Your daily work (should start) at daybreak.
83 Gather a (sufficient) number for
82 your force of helpers and grain gatherers, lay down the sheaves.
84 Your work should be carefully done.
85 After having had stale coarse flour (for so long),
85a do not let anyone thresh (just) for your (new) bread,
86 (but) let the sheaves have a rest.
87 The rites for the sheaves should be performed daily.
88 When you transport your barley,
89 your barley carriers should handle small amounts(?).
90 Mark the limits of an uncultivated plot of yours.
91 Establish properly your paths.
92 Your wagons should be in working order.
93 Feed (well) the wagon's oxen.
94 Let your prepared threshing floor rest for a few days.
95 To open your threshing floor, smooth it completely.
{96 When you thresh,}
97 the teeth of your threshing sledge and its leather straps should be
secured with bitumen.
- 98 When you make the oxen trample (the grain),
99 your threshers should be strong.
100 When your grain is spread on the ground,
101 perform the rites of the grain not yet clean.
102 When you winnow,
103 put an intelligent person as your second winnower.
104 Two persons should work at moving the grain around.
105 When the grain is clean, lay it down "under the stick" (to measure it).
106 Perform the rites in the evening and at night.
107 Release the grain at midday.
108 Instructions of the god Ninurta, son of Enlil.
109 Ninurta, faithful farmer of Enlil, your praise be good!

5.2. NOTES

1. 1) A: -ra; BD: ^{ru}; A₂A₃: -e. 2) Non-Nippur sources: D₃:]-ra; E3: u₄-ul uru₄-le¹; Catalogues: u₄-ul ENGAR-ra *BASOR* 88 12:53 (Nippur); u₄-ul-la ENGAR *UET* 6 123:35 (Ur); u₄-ul-ENGAR *UET* 5 86:22 (Ur); u₄-ul ENGAR [...] Si 331:10 (Sippar); u₄-^rul¹-lí-a ENGAR-ra dumu-a-ni K 1870:14 (Kouyunjik).

3. 1) ABEA₂: -ù-dè; A₃: -da. 2) A: kár-[-; C: kár-kár-ka; E: kár-kár-ab; A₂: kár-kár-[-; A₃: kár-ka-[-.

4. 1) A: -NI; B: -ù-d[è; CA₂A₃: -dè. 2) ACE: -ba; A₂A₃: -bi. 3) A²A₃: nu-[-; C: [ga²-ab²]-[í]; EA₃: nu-íl.

5. 1) ABA₂A₃: a-; C om. 2) A: im-mu-e-a-e₁₁-dè-a; B: im-me-e-[-; C: im-[me]-^re₁₁-dè¹-a; A₂: im-me-e₁₁-dè-[-; A₃: im-mu-e-è-dè-a.

6. 1) AGA₂: ak-a[b; B: a[k-; C: [ka-ab]; A₃: nag-(erasure)ab; D (lower edge): ki-du-ru-bi (erasure) e-ja.

7. 1) ABCG: suhúb; A₂A₃: suhub.

8. 1) C: -a-; ABGA₂A₃ om. 2) AA₂A₃: -bí-; B: -ba-e-.

9. 1) G: -àm; ABA₂A₃ om. 2) ABA₂A₃: ^{uruda}; G om. 3) A₃: -àm; ABGA₂ om.

10. 1) ABGA₂: -šub-; A₃ om. 2) A₂A₃: -ab-; G om. 3) GA₂: -šú-šú; B: -šeš₄; A₃:]-^ršú².

11. 1) A₂: -ab-; ABG om.

12. 1) ABG: -ba; A₂A₃: -bi. 2) ABGA₃: -e; A₂: -la. 3) A: -nigin-n[a?; BA₂A₃: -ab-nigin; G: -r[a²]-nigin.

13. 1) AA₃: -e-da; B: -e-a-da; G: -e-a; A₂: -gá-dam. 2) BGA₂A₃: a-; A: ma- (erased). 3) AGA₂: -ke-a; B: -ge-e; A₃: -ge-a.

14. 1) A: -da; A₃: -a; A₂ om.

15. 1) A: -a-zu/ba; B: -a-bi; A₃: -a; A₂ om. 2) F²A₂A₃: -ab-; A om.

5.1. The Nippur Text

16. 1) ABF: -a; A₂: -ta; A₃ om.
17. 1) B: giš; AFA₂A₃ om. 2) (H)A₃: -a; AA₂ om.
18. 1) B: -ta; F: -t]a; A₂A₃: -e-ne. 2) BFA₃: dùg; A₂: HI.UD. 3) H: -àm (over erased -eš, or both?); A₂: -en; A₃: -e (after a second, erased ak). 4) A om. lines 18-22.
19. 1) BF: šum-me; A₂: ù-šum-me níg-ak; A₃: šum-me ak-a. 2) B: h]a-ra-ab-[x]; F: [á-z]u si ha-ra-ab-sá-e; A₂: á-zu sag ha-ra-ab-ús-en; A₃: á-zu sag ha-ra-kéš.
20. 1) BFA₃: kuš; A₂ om. 2) F: -e₁ 1-; A₂A₃: -è-. 3) H:]-dùn[?]; A₂: -du₁₀; A₃: -dù. 4) BF: -zu; A₂A₃: -za. 5) A₂: -en; FA om.
21. 1) BF: KA; A₂: K[A(xX)-d]i; A₃: KAxA-[di]; 2) F: hu-mu-ra-ab-; A₂: mu-ra-an-; A₃ hu-mu-un-. 3) B: hu-m[u-; F: hu-mu-ra-an-; A₂: -ba ha-ra-an-; A₃: ha-ra-ab-.
22. 1) B: da hé-]; F: da hé-en-gál; A₂ é-za a hé-en-gi; A₃: [x] hé-gál. 2) BF: igi kár-ka-ab; A₂: níg-nam mu-un-šub-bé-en; A₃: na[m]-mu-un-šub-].
23. 1) BA₂: giš; A om. 2) BFA₃: -ga; AA₂ om. 3) BFA₃: a-; A₂: a-ra-; A om.
24. 1) A: dur bí-; BA₃: ʾTUʾ bí-; A₂: dur[?]-bi. 2) BFA₂A₃: -a; A om.
26. 1) AA₂: -e; F: -a; A₃ om. 2) AF: (ʾ18ʾBÙR); A₂A₃: 180(BÙR-*gunû*). 3) FIA₂A₃: -àm; A om.
27. 1) A₂A₃: -àm; A om. 2) FA₂: giš; AA₃ om. 3) AFA₃: -ba-; A₂: -da-.
28. 1) A₂: húl á-ba-; A₃: ʾhúlʾ-. 2) Line in A₂A₃; ACF om.
29. 1) A₂A₃: -àm; AF om. 2) AFA₂: -an-; A₃ om.
30. 1) ACLA₂A₃: giš; J om. 2) AKLA₃: -e; DA₂: -ta.
31. 1) A₃ inserts a-šà at the beginning of the line; CJA₂ om. 2) A₂: -ak; A₃ -a/-ak. 3) J: túg-ʾgurʾ (collated)); A₂: túg-gur-; A₃: LAGABxU- (for LAGAB = tukur).
32. 1) CLMN: -ab; JA₃ om.
33. 1) CNA₃: giš; LM om. 2) K: giš; L traces of sign; CA₃ om. 3) CL: -aš; A₃: -šè; note var. KAK-da-ga-šè in A₄B₄.

34. 1) CMNA₃: g^{iš}; JL om. 2) C: -za; A₃: -zu. 3) C: hé-ha-za-ab (incorrect hybrid form); A₃: he-ha-za. 4) KLA₃: -šè; C om. 5) A₃: -an-; C om.

35. 1) C:]-zu-a; G: kin [x] (initial vertical)-[x]-a-zu; L: kin-ak-zu-a; N: kin-ak-[x] (initial vertical); F: kin-ak-ta; A₃: kin-ak-a-zu. 2) CA₃: -ba; F: -bi-a. 3) C: -dé; F: ? (on edge, not collated); A₃: -DU.

36. 1) A₃: -a-; FN om. 2) A₃: -en; CF om.

37. 1) FGL: -zu-ak; A₃: -za. 2) A₂: -en; F om. 3) Line in FGLNA₃; J om.

38. 1) F: -a-; A₃: -ra-.

39. 1) J: -G^{iš}?; GA₃: -àm; A₂: g^{iš}apin; LO om. 2) F: -da-šè; A₃: -dè. 3) JL: -zu; F: -za; A₃: -zu-šè. 4) F: -e-gíd-i; A₃: -è-gíd.

40. 1) JGOA₂A₃: g^{iš}; L om. 2) J: -a-bi; FL: -bi; A₃: -e.

41. 1) FJOQ: uru₄^{ru}-; A₃: dib-bé-.

42. 1) FJA₃: -ab-; Q om.

43. 1) FQA₂: kuš; A₃ om. 2) FA₃: -du₅-; Q: -du₈-.

45. 1) A₃: -bi; OQA₂ om. 2) A₂: -NE-; QA₃ om. 3) J: sín-ab [síc]; OQ: ab-sín; F: g^{iš}apin; A₂: absìn. 4) QA₃: gub-ba-; O: gub^l-b[u²].

46. 1) G:] [uš]; FOQ: (1) ninda uš; A₂: 1 ninda-ta-àm; A₃: sag 1 ninda-àm. 2) F: ab-sín [8] [; J: 8 ab-[; OA₃: ab-sín 8-àm; Q: 8 ab-sín; R: ab-[; A₂: absìn 8-àm.

47. 1) FOQRA₃: ab-sín; A₂: absìn. 2) FQ(R): sír-sír-; OA₂: dúr-dúr-ru-; A₃: sír-sír-ru-.

48. 1) Line in HQA₂A₃; O om.

49. 1) FO: -zu; Q: -za; A₂: -zu-uš; A₃ om. 2) OQA₂A₃: -zu; F om. 3) A₃: -ra-; QA₂ om.

50. 1) FOA₂A₃: -àm; Q om. 2) IQA₂: -en-; A₃ om.

51. 1) F: uš-ta; Q: uš; A₂: -ta-àm; A₃:]-àm. 2) FJQ: 1 gín še; I: še 1 gín-àm; O: 1 gin še-e; A₂: še 1 gín; A₃: še 1 silà. 3) I: -gál; Q: -gar; A₂A₃: -an-gar.

52. 1) Q: -na; FIA₂A₃ om. 2) FIQ: a-tur-ra; J:]-tur; A₂: é-tùr-ra; A₃: a-tùr-ra. 3) QR: -ub-; A₂: -um-; I om.; J uncertain (probably incorrectly joined, not collated): nu-ub-si-[x (x)].

5.1. The Nippur Text

53. 1) FINA₂: ^{giš}; JA₃ om. 2) FJQA₂A₃: ^{giš}; I om. 3) FIJRA₂: ^{giš}; QA₃ om.
54. 1) FRA₃: ab-; I: a-; QA₂: a-ab-; 2) I: [tur²-ab²]; Q: ùr-ra; A₂: tur-ra-ab; A₃: tur-ra-[-.
55. 1) FINQUA₃: ab-sín; A₂: absìn. 2) QRSTA₂: ì-; FIA₃ om. 3) FIQ: -a; A₂: -ab; A₃: -a-ab. 4) FIQRTA₃: ab-sín; A₂: absìn. 5) I: -ra; QA₂: ^{ru}-ab; A₃: ^{ru}-a-ab.
56. 1) FINQUA₃: ab-sín; A₃: absìn. 2) RA₂A₃: ^{giš}; FIQS om. 3) QSTA₂: ì-; FIA₃ om. 4) FIQ: -a; A₂: -ab; A₃: -a-ab. 5) FIQTVA₃: ab-sín; A₂: absìn. 6) A₃: -a-; QA₂ om.
57. 1) FINQUA₃: ab-sín; A₂: absìn. 2) A₂A₃: -bi; FINQ om. 3) FQ: gú; A₃: dur; I(T): GUD-kú-ru; R: GUD-[-; V: -t]u-lu; A₂: TAR. 4) IV: GUD; A₃: dur. 5) I: mu-; Q: mu-ra; V: mu-[-; A₂: nu-mu-ra; A₃: hu-mu-ra-. 6) A₃: -ne; IQA₂ om.
58. 1) FIQA₃: ab-sín; A₂: absìn. 2) HI: -gú-; A₂: -dur-; A₃: -gud-. 3) F: -sá; V: erasure?; IQSTA₂A₃ om.
59. 1) JIQA₃: ab-sín; A₃: absìn. 2) I: gán; FQSVA₂A₃ om. 3) A₃: absìn gilim-b[a; IQSVA₂ om. 4) IA₂: -da; QV: -rá-zu. 5) A₃: -a-; Q om.
60. 1) 1. A₂: sig₄ lag; FQA₃ om. 2) A₃: -ab-; IQ om.
61. 1) FS: -bi; V: -[ba¹.
62. 1) QA₃: -bi; S: -ba. 2) IQ: -sig-sig; A₃: -ni-ib-sig₇-[-.
66. 1) OQUA₃: -ra; V: -e; A₂: -a. QUA₂A₃ have clear bir₅(NAM); O uncertain; no source shows buru₅. 2) Q: -e-; V: -a-[-; A₃: -e-bí-.
67. 1) EQUWA₂A₃: še; O om. 2) OUVA₂A₃: -la; Q om. 3) (O)Q: ab-sín-na-ka; V: ab-sin-ke₄; A₃: ab-sín-ka; A₂: absìn-na-ka.
68. 1) OQA₃: -ke₄; A₂: -ka. 2) OQUVW have 67 and 68 on the same line. A₂ has an extra line (om. by other sources) after line 68: [u₄¹ še ^{gi}kid-má-šú-a A.AN du₇-[a a¹ dug₄-ga-[-; see line 69.
69. 1) OUA₂A₃: -šú-a-; QV: -šà-ga-. 2) OQA₂: -ba; A₃: a-.
70. 1) EH: -ba; A₂A₃: -bi.
71. 1) EOQWA₃: luh-; A₂: lu-. 2) QO²: an-sù-a; A₂: àm-di-a; A₃: ab-si. 3) O: -ná-[-; Q: -ná-aš; A₂: -na-[-; A₃: -ná-šè. 4) QA₃: ba-; A₂: ba-e-.

72. 1) EOQ: -bir-; A₂: -HI- (copy); A₃: -bi-ri-. 2) QA₃: a-; A₂: ba-.
73. 1) E: še 1 silà; OQW: 1 silà še; T: silà še-àm; A₂: u 1 silà-ta; A₃: 1 sila(TAR)-àm. 2) Q: kù-; TA₂A₃: ku-. 3) A₂A₃: -an-; Q om.
74. 1) EOQA₂: -ru-; WA₃ om. 2) QTA₂: ur₅; A₃: [ur[?]]; C₃: KIN/ur₄. 3) Q: nam-ba-gúr-e-en; A₂: gúr nam-ba-ak-e; A₃: nam-ba-gúr-e-[(x)].
75. 1) QA₁A₃: gur₁₀-gur₁₀-ra-; A₂: gur₁₀-ru-a-.
76. 1) EFA₁: ù; A₂: [zar[?]]. 2) QA₂A₃: šezar; A₁ om. 3) Q: 1-e; A₁: 1-àm; A₂: 2-àm.
77. 1) A₁A₃: šezar; FT: zar. 2) F: -ra-ab-[-]; A₁: -ra-ab-sá-e; A₃: -na-ab-tag-ge
78. 1) (K)A₁A₂: -ab-; T: -a]n-. 2) A₁: -re; A₂A₃: -ru-ne.
79. 1) F: -de₅-ga; XC₁: -de₅-de₅-ge; A₂: -de₅-de₅-ga-zu. 2) EFXA₁: šu-; A₂ om.
80. 1) ZB₁C₁D₁A₂A₃: še; EF? om. 2) EFZC₁: -e; A₂A₃: -na. 3) E: -n[e; F: -le-[e]-[-]; A₁: -le-e-ne; A₂: -le-dè-en; A₃: -le-ne; X om.
81. 1) EFX: -ra-; A₂ om.
82. 1) EC₁A₂: -lá-zu-; A₃: -e-[mu]-. 2) X:]-ga-zu[?]-ne[?] (squeezed, looks like DU-DU); A₂: -ga-zu-ne; A₃: -ga-ne.
83. 1) A₃: -da-; EFZB₁C₁D₁ om. 2) EFA₂: -la-; C₁ om. 3) EF: zar-éš; X:] zar-re-éš; A₂: šezar-re-eš; A₃: zar-re-eš. 4) E: -a-ab; FX: -a-[-]; A₂: -NE-[en?]; A₃ unclear.
84. 1) EA₂: -ab-; F?XE₁: -an-. 2) This line in E after 85a.
85. 1) B₁C₁D₁A₃: zì; A₂ om. 2) FC₁D₁E₁A₂: -e; A₃: -a.
- 85a. 1) FB₁C₁D₁: ka-; A₂: gu₇-. 2) FC₁E₁: -šè; A₂: -uš.
87. 1) FC₁D₁E₁: še; B₁ om. 2) EFY: -uš-e; E₁: -e; A₃: -uš. 3) EE₁: ha-ra-[-]; F: KA-[- (i.e. dug₄-[ga-ab]); Y: ha-ra-dug₄; A₃: ha-ra-ab-dug₄.
88. 1) F: -è-dè-en-na-[-]; Y:]-lá-e-da-zu-dè; E₁: -e₁₁-dè-na-z[u-; A₃: -[è]-en-na-zu. 2) Line in FYE₁A₂A₃: [E]C₁D₁ om.
89. 1) E₁: -e-da-; F om. 2) F: -ab-; YE₁: -an-. 3) Line in FWYC₁D₁E₁F₁; A₂A₃ om.

90. 1) Line in FWYD₁E₁A₃; A₂ om.; F₁ om. 90-93.
91. 1) FYE₁: si; A₃ om.
- 91a. 1) sequence as in F; WD₁G₁ after line 93.
92. 1) A₃: -sá; Y om.
94. 1) Line in EFWYD₁F₁G₁; A₃ om.
95. 1) E: -rá-da-; WG₁A₃: -rá-; D₁ om. 2) FF₁G₁H₁: -ur₅-; A₃: -ùr-.
96. 1) Line in A₃; EFYD₁F₁G₁H₁ om.
97. 1) FA₂: -rá-; G₁H₁: -rá-ba-; A₃: -da-a-; EB₃: om. 2) FG₁H₁A₂: -bi; A₃: ab-[x]. 3) EFY?A₃: esír; C₁G₁H₁A₂: esir. 4) YH₁: -ab-; F₁ om.
98. 1) EYG₁H₁I₁A₂: dúr-dúr-ru-da-; EF₁: dúr-dúr-ru-na-; A₃: dúr-ru-da-.
99. 1) EFC₁D₁F₁G₁H₁A₃: bad; A₂: g^{is}bad. 2) EC₁F₁G₁H₁A₃: -rá-; F: -rá-a-; A₂: -du₈-. 3) A₃: -ne; FYG₁H₁I₁ om. 4) A₃: Ni-a; EFYF₁G₁H₁I₁ om. 5) E: -en-dè-gub; F: -dè-[-]; Y: -en-x-gub; F₁: -en-d[è-; G₁H₁: -dè-gub; A₂: -ri-gub-bu-uš; A₃: -gub-bu-uš?.
100. 1) EF: ki; C₁D₁F₁G₁H₁A₂ om. 2) E: ba-e-[-; F: ba-e-ne-; C₁D₁F₁G₁H₁: ba-e-ni-; I₁:]-[e]-ni-; A₂: bí-in-. 3) EFYG₁H₁: -ús-sa; A₂: -x-a. A₃ om. line.
101. 1) EC₁D₁F₁G₁H₁A₂A₃: še; F om. This line after 104 in A₃.
102. 1) EC₁D₁F₁G₁H₁A₃: u₄; A₂: lú. 2) E: -è-na-; F: -lá-e-en-na-; C₁: -lá-e-[-; G₁H₁: -lá-e-na-; A₂: -lá-e₁-dè-en-na-; A₃: -è-en-na-. 3) A₂ adds 102a: lú še al-lá-e₁-dè-en-na-zu.
103. 1) EC₁D₁F₁G₁H₁A₂A₃: ki-; F om. 2) EF(Y)G₁H₁(I₁): al-gub-bu-a; A₂: al-lá-e-na-gub; A₃: al-bu-a. 3) EH₁: lú gestú-ga; PG₁: lú gestú; A₂: gestú-tuku; A₃: lú gestú-ka. 4) E: -bu-; FYG₁H₁A₂A₃: -ba-.
104. 1) EF: -àm; C₁D₁F₁G₁H₁A₂A₃: -a. 2) EC₁D₁F₁G₁H₁I₁A₃: 2-àm; F: 2; A₂: 3-àm. 3) A₃: -an-; EFG₁H₁A₂ om. 4) (FY)G₁H₁A₂: -uš; E om.
105. 1) E: ba-e-ni-; C₁D₁F₁H₁A₃: ba-e-. 2) First half of line in A₂: še nir-ra-zu. 3) A₂: g^{is}PA; EF₁G₁H₁I₁A₃: PA. 4) E: -ab; G₁H₁A₃: -a-ab; A₂: -bí-ib.
106. 1) EC₁F₁H₁I₁A₃B₃: á; A₂ om. 2) EA₂: u₄-te-en; F₁H₁I₁: u₄-te; A₃: te-en.

108. 1) F_1G_1 : -ga; EH_1A_2 om. 2) G_1 : <nin>-. 3) $EIXF_1G_1H_1$ dumu; A_2 : engar. 4) $EFXG_1H_1$: -ke₄; A_2A_3 om. Extra line in A_3 : še bur-ra a-ra-ab-túm [x]-e.

109. 1) $E(F)F_1A_3$: engar-zi; A_2 : en dumu. 2) $FB_1F_1A_2A_3$: -zu; E om. 3) Line in $EFB_1F_1A_2A_3$; XG_1H_1 om. H_1 adds ^dinanna zà-mí.

5.2. NON-NIPPUR VERSIONS

5.2.1. Bilingual Version: CBS 1354 (B₃)

col. 1 1-15	(broken)	
16/12	['ki-ib ¹ -ra-at 'x x ¹ [gú a-šà-ga ub-da-4-ba ¹ giš ³ al-e ² ha-ra-nigin ³	]
17/13	en-na a-šà-ga al-še[g ₆ - 'a-di ¹ eq-lum i-na ba-ša-lim uš-[en-na a-šà-ga al-šeg ₆ -šeg ₆ -e-da ¹ téš a ² -ra-ab-si-ke ³ -a	]
18/18	dumu gašam-ke ₄ -ne [ma-a[r] um-mi-a-nim lu-ú [dumu gašam-ta ¹ dùg ² ha-ra-ab-ak-eš ³ ⁴	]
19/19	gín ^z abar bulug ^z abar [giš ³ su-kár ap[ⁱⁿ pa-a-šum ma-aq-qá-rum šu-uš-ša-a-rum ú-nu-ut e-pí-ni [uruda ^{gín} uruda ^{bulug} uruda ^{šum-me} ¹ giš ³ su-kár-zu [á ² -z]u si ha-ra-ab-sá-e ²	]
20/20	kuš ^{sag} -si bar-e ₁₁ -dè kuš[su-tum te-nu-um e-ri-im-tum [kuš ^{sag} -kés kuš ¹ bar-e ₁₁ ² -dè kuš ^{ka-dù} ³ kuš ^{usàn} sag-zu [?] hé [?] -ha-za	]
21/21	gi ^{ba} -an-du ₈ -du ₈ -zu K[A ma-az-ru-ka lu-ú la-ti-í[k i-di da-an-na-tim lu-ú [gi ^{ba} -an-du ₈ -zu KA ¹ hu-mu-ra-ab ² -ak á kalag-ga hu-mu-ra-an ³ -ak-e	]
22/22	á-áš a-šà-ga-zu giš-bi [x] [hi-še-eh-ti eq-li-ka [li-BI-x] [á-áš a-šà-ga-zu da hé-en-gál ¹ kin-zu igi kár-ka-ab ²	]
23/14	giš ³ su-kár-zu [ú-ni-a-tu-ka lu-ú [giš ³ su-kár-zu sa ha-ra-ab-gi ₄ -a ¹	]

The Farmer's Instructions

24/15	giššudun-zu dùn-dím-zu [] ni-ir-ka i-na ta-ka ¹ al-[ti] giššudun-zu á-šita ₄ -a-bi ¹ ha-ra ² -kéš
25/16	kuš ¹ usàn gibil-zu [] qí-in-na-az-ka eš-ši-tu[m] kuš ¹ usàn gibil-zu giš ¹ kak-a ¹ ha-ra-ab-lá
26/17	kuš ¹ usàn sumun-a-bi [] qí-in-na-az-ka la-bi-ī[r-tum] kuš ¹ usàn sumun-zu giš ¹ mud lá-lá-a ² -bi
27/	dumu engar-ke ₄ -ne [] [ma-ar ik-k]a-ri-īm lu-ú []
28/	[x ¹] [x x x x] ga [] []
29/23	[gu]d apin g[ud] e-pí-nu š[ā] gud giš ¹ apin gud diri-ga ² a ³ -ab-tuku-a
30/24	gud gud-da [] al-pu al-pa [x ¹] [] gud gud-da dur bí ¹ -ib-tu-lu-a ²
31/26	iš-gàr [giš x x ¹] [] [x x ¹] [] [és-gàr] giš ¹ apin 1-e ¹ 180 ² iku-àm ³
32/	[] igi mu-n[i-] [] il-na-aṭ-ṭa-[al/lu]
33/?	[] [x ¹] gud/bi dam [(traces)] []
34	(broken)
35/?	gud apin gud SÍ? ¹ [] [el-pí-nu-um ša [lil-te-[x ¹]-[]
col. ii	(completely lost)
col. iii	
1/57	ab-sí[n si-sá] i-ša-rq-t[i] ab-sín ¹ si-sá ² gú-tu-lu ³ gú ⁴ -TAG mu-ra ⁵ -gá-gá ⁶
2/59	ab-sín ab-[ki-iz] ap-ki-si-t[um] ab-sín ¹ ab-ki-iz-bi ² DU-a ³ gán kud-rá-zu [?] uru ₄ ^{ru5} -ab

5.2. Non-Nippur Texts

3/59	ab-sín g[ilim-bi <i>pa-ri-ka-t[í</i> ab-sín gilim-ba [	]]] (Ur version)
4/61	ki sahar ús <i>ʾa-šar qá-qá¹-[rum</i> ki sahar uš-bi¹ ab-sín ha-ra-ni-ib-ra	]]]
5/62	ki sahar k[a-tab-ba <i>a-šar a-ta-ʾx¹ [</i> ki sahar ka-tab-bi¹ ab-sín ha-ra-sig-sig²	]]]
6/60	lag-bi [<i>ki-ir-ba-an-[na</i> lag¹-bi ha-ra²-de₅-de₅	]]]
7/63	henbúr-šè [<i>a-na ha-ab-b[u-ri-im</i> henbúr-šè a-ra-sag₉	]]]
8/64	u₄ henbúr-šè ki [<i>i-nu-ma ha-ab-b[u-ru-um</i> u₄ henbúr-e ki im-ma-ab-dar-ra-ta	]]]
9/66	zú bir₅ ^{mušen} [<i>ši-in-ni er-bi-[im</i> zú bir₅ ^{mušen} -ra¹ bal-e²-eb	]]]
10/67	u₄ še ka-sal-[la <i>i-nu-ma ŠE ʾx¹ [</i> u₄ še¹ ka-sal-la² ab-sín-na³-ka a-ab-điri	]]]
11/69	u₄ še ḡ[kid- <i>i-nu-ma ŠE-u[m?</i> u₄ še ḡkid-má-šà-ga¹-ba² ab-gub-ba a dug₄-ga-ab	]]]
12/70	še lillan-ba [<i>li-il-[i-a-nu-um</i> še lillan-ba¹ a dug₄-ga-ab	]]]
13/71	u₄ še luh-[ha <i>i-nu-ma ʾŠE¹-[</i> u₄ še luh¹-ha an-sù-a² a na-ab-bé-en sa-ma-ná-aš³ ba⁴-gig	]]]

rest of col. iii broken

col. iv

1/93	gud ḡišmar-gíd-da-zu mur gu₇-bí-ib <i>al-pí e-ri-iq-qí-ka im-ri-a-ʾam šu-ki-iḷ</i> gud ḡišmar-gíd-da-zu mur gu₇-bí-ib
------	---

- 2/ u₄ še ab-ta-è-dè
i-nu-ma ŠE-a-am tu-še-el-lu-ú
- 3/ lú še gišmar-gíd-da gub-a lú usu-tuku gub-ba-ab
ša i-na e-ri-iq-qí tu-uz-za-az-zu ra-ši e-mu-qí šu-zi-iz
- 4/104 lú še DU-a 2-àm ha-ra-gub
ba-bi-il ŠE-e ši-na li-iz-zi-zu-ma
lú še DU-a¹ 2²-àm ha-ra³-gub-bu-uš⁴
- 5/ še-ta ab-ta-è-dè
iš-tu ŠE-a-am tu-uš-te-lu-ú
- 6/94 su₇ <du₈>-da-zu u₄ 5-kam ha-ba-ne-ha
ma-aš-ka-an-ka na-du-ú U₄ 5.KAM li-nu-uh
su₇ du₈-a-zu u₄ 5-àm ha-ba-ne-ha¹
- 7/95 su₇ bal-bal-zu níg-ùr ùr-ra-ab
ma-aš-ka-na-am i-na bé-ši-ka bi-it-ta-am bi-i-it
su₇ bad-rá¹-zu-dè níg-ur₅²-ra du₈-ni
- 8/97 zú gišbad-zu kuš lá-lá-ta esir ha-ra-ab-TAG-TAG
ši-in-ni gi-is-sa-ap-pí-i-ka ku-ru-sà lu-ú ka-ri-is it-ti-am lu la-pí-it
zú gišbad-rá¹-zu kuš lá-lá-bi² esir³ ha-ra-ab[?]-sub₆-sub₆
- 9/98 gud gud šub-bu-da-zu-dè
al-pí i-na šu-úh-bu-ti-ka
gud dúr-dúr-ra¹-zu-dè
- 10/ gír gud-gud-da še ba-ra-gaz
[] še-ep al-pí ŠE-a-am šu-úh-bi-it
- 11/ ugu gud-gud-da gišbad im-ra-ra
'e-líl al-pí gi-is-sa-pu-um-ma i-di-a-aš
- 12/ še-ta ab-ra-ra nu še lá-e-zu
iš-tu ŠE-a-am ta-ad-di-šu la-ma ŠE-a-am ta-za-ar-ru-ú
- 13/106 sizkúr á u₄-te-na-ke₄ dug₄-ga-ab
ní-qí ta-ra-am-mi i-qí
sizkúr á¹ u₄-te-en² gi₆-ba dug₄-ga-ab
- 14/102 u₄ še al-lá-e-en-na-zu
i-nu-ma ŠE-a-am ta-za-ar-ru-ú
u₄¹ še al-lá-e-na²-zu³
- 15/103 lú še-lá ki-ta lú geštú-tuku gub-ba-ab
[x x] ša-pí-il-tim tu-uz-za-az-zu ra-ši uz-nim šu-zi-iz
lú še ki¹-ta al-gub-bu-a² lú geštú-ga³ gub-ba-ab[?]

5.2. Non-Nippur Texts

- 16/104 lú še DU-a 2-àm ha-ra-gub
 'ba-bi-il' ŠE-e ši-na li-iz-zi-zu-ma
 lú še DU-a¹ 2²-àm ha-ra³-gub-bu-uš⁴
- 17/ še-ta al-lá-e-en-na-zu
 iš-tu ŠE-a-am ta-za-ar-ru-lú¹
- 18/105 še nir-ra gišgidru-šè ná-la¹
 za-ku-ut-ka i-na ha-aṭ-ti-im šu-ni-lil¹
 u₄ še ba-e¹-nir-ra² gidru³-šè ná-a-ab[?]
- 19/101 sizkúr še nir-ra []
 [nīl-qí-im hi-ši[?] []
 sizkúr še¹ nu-nir-ra dug₄-ga-ab
- 20/ pa₅ šitá 'x¹ []
 (traces)
 (rest broken)

The most interesting passages will be discussed in the commentary (chap. 6). The Akkadian translations follow the original Sumerian relatively well. In the interpolations, however, the scribe translates an Akkadian original, forcing the Sumerian syntax into an Akkadian mold; see, e.g., iv 2, 5, 17, and this despite these interpolations being imitations of the phraseology of the original. There are many changes in the line sequence, especially towards the end. Since what is approximately line 16 of col. i is only line 12 of the Nippur version, it is likely that B₃ had the five-line interpolation found also in D₃. The unidentified lines at the bottom of col. iii may also correspond to the second interpolation of D₃, lines 29ff. Note, finally, line iv 20 which returns to the initial irrigation theme, closing the loop of the agricultural year.

5.2.2. MLC 1359 (C₃)

- col. i
- 1'/14 [-a]b-gi
 giššu-kár-zu sa ha-ra-ab-gi₄-a¹
- 2'/15? [-a]b-sá
 giššudun-zu á-šita₄-a-bi¹ ha-ra²-kéš
- 3'/16 [-r]a-ab-lá
 kušusàn gibil-zu giškak-a¹ ha-ra-ab-lá
- 4'/? [] 'x x ra[?]¹
- 5'/17? [] 'x¹-lá
 kušusàn sumun-zu giš¹ mud lá-lá-a²-bi
- 6'/? [] 'x¹-bi/ga
- 7'/24 []-lu-a

The Farmer's Instructions

- gud gud-da dur bí¹-ib-tu-lu-a²
- 8'/21? []-ab-ak
gi¹ba-an-dug-zu KA¹ hu-mu-ra-ab²-ak á kalag-ga hu-mu-ra-an³-ak-e
- 9'/25 [] 'diri¹
giš¹apin-bi giš¹apin-na a-ab-diri
- 10'/26 [ik]u-àm
'és-gâr¹ giš¹apin 1-e¹ 180² iku-àm³
- 11'/28 []-x¹-dím
'á?¹ šà-húl-gin₇ a-ra-ab-dím-e²
- 12'/29 [-g]á-gá
18 iku-ba 0.3 še gur¹ ba-an²-gá-gá
- 13'/? []-àm
- 14'/30 []-ak
usu giš¹apin 1-e² a-šà giš¹bar-dil-bi ù-bí-ak
- 15'/31? []-x¹
giš¹bar-dil-bi¹ giš¹apin-túg-sig₁₈ ù-bí-ak² túg-gur³-ra-ab
- 16'/32? []-x¹
giš¹ùr-ra-ab¹ giš-gi₄-a-ab giš¹peš-bí-ib
- 17'/33 []-ak
ki-šúr-bi giš¹níg-gul-ta giš²KAK.UD-aš³ ù-bí-ak
- col. ii
1/36 []-ge
kin-ak¹-zu-šè gá-la nam-ba-an-dag-ge²
- 2/37 []-ab-'bé¹
a-šà kin-zu ak¹ na-an-na-ab-bé² 3
- 3/38 [i]m-ma-dar-ra-t[a]
u₄ mul an-na šu im-ma-ab-du₇-a¹-ta
- 4/39 [] zi-zi igi 'x¹ nam-ba-'el-[]
10-àm¹ á gud a-šà zi-zi-i-da-šè² igi-zu³ nam-ba-e-gíd-i³
- 5/40 [] ha-ra-ab-dù
giš¹al dù-a-bi² ha-ra-ab-ak-e
- 6/41 []-zu-dè
a-šà uru₄ ru¹-da-zu-dè
- 7/42 [h]a-ra-ab-du₈
giš¹apin-zu gu ha-ra-ab¹-dúb

5.2. Non-Nippur Texts

- 8/43 [d]ùn-lá šub-ni
giš¹ka-šú giš²apin-na-zu kuš¹im-du²-mu šub-ni
- 9/44 [k]ak-sal-la' šub-ni
giš¹dam-zu giš²kak-sal-la šub-ni
- 10/45 []-zu gub-ba-ab
giš¹li-um-zu á¹ hé²-tál-tál ab-sín³-zu gub-ba[?]-ab
- 11/46 [(x)] 'x¹-àm ab-sín 8-àm gub-ba-ab
1 ninda uš¹ ab-sín 8² gub-ba-ab
- 12/47 ab-sín dūr-dūr-ru-na še-bi KU ab-gíd?
ab-sín¹ dūr-dūr-ru²-na še-bi gú a-ab-gíd
- 13/ al dù-bi ha-ra-ab-dù
- 14/48 a-šà uru⁴-da-lzu¹-dè
a-sà uru⁴-da-zu-dè¹
- 15/49 lú še-numun gar-ra-zu igi-ni gar-ra-ni
lú še-numun gar-ra-zu¹ igi-zu² gar³-ni
- 16/50 2 šu-si-ta-àm ^{da}šnan hé-šub
2 šu-si-ta-àm¹ ^{da}šnan hé-en²-šub
- 17/51 uš 1 'ninda-àm[?] še 1 'gín x-x¹
1 ninda uš-ta¹ 1 gín še² ha-ra-gar³
- 18/52 'tukum¹-bi še-numun a-tur-ra nam[?]-ba-suhur?
tukum-bi še-numun¹ a-tur-ra² nu-ub³-suhur
- 19/53 níg-T[AR em]e apin-zu kúr-ra-ab
giš¹níg-ku⁵ giš²eme giš³apin-na-zu kúr-ra-ab
- 20/54 tukum-bi dur GA dur-KU tur-ra-ab
tukum-bi dur a-ab¹-tu-lu dur tur-ra-ab²
- 21/55 ki ab-sín si-sá uru⁴-ab ab-sín šibir uru⁴-ab
ki ab-sín¹ si-sá i²-uru⁴-a³ ab-sín⁴ giš²šibir uru⁴-ab⁵
- 22/56 ki ab-sín šibir uru⁴-da ab-sín / si-sá uru⁴-ab
ki ab-sín¹ giš²šibir i³-uru⁴-a[?] ab-sín[?] si-sá uru⁴-ab⁶
- 23/57 ab-sín si-sá kud-lugúd-da mu-ra-ab-lgá-gá¹
ab-sín¹ si-sá² gú-tu-lu³ gú⁴-TAG mu-ra⁵-gá-gá⁶
- 24/58 ab-sín lugúd-da si ha-ra-ab-sá
ab-sín¹ lu-gú²-zu si³ ha-ra-ab-sá
- 25/59 ab-sín ab-LAGAB-da-a dù-a a-ku[d]-l'x¹-bi uru⁴-ab
ab-sín¹ ab-ki-iz-bi² DU-a³ gán kud-rá-zu[?] uru⁴-ab⁵

The Farmer's Instructions

- 26/60 lag-bi ha-ra-ab-de₅-de₅
lag¹-bi ha-ra²-de₅-de₅
- 27/61 ki sahar ús-a-ba ab-sín ha-ra-ab-sig₇-sig₇-ga
ki sahar ús-bi¹ ab-sín ha-ra-ni-ib-ra
- 28/62 ki sahar 'ka¹-tab-ba ab-sín ha-ra-ab-x-'x¹
ki sahar ka-tab-bi¹ ab-sín ha-ra-sig-sig²
- 29/63 henbúr a-ra-sag₉
henbúr-šè a-ra-sag₉
- 30/64 u₄ henbúr-a ki im-ma-dar-[]
u₄ henbúr-e ki im-ma-ab-dar-ra-ta
- 31/65 [siz]kúr ^dnin-kil[im]
sizkúr ^dnin-kilim-ke₄ dug₄-ga-ab
- col. iii
1/69 'u₄¹ še gig []
u₄ še ^gkid-má-šà-ga¹-ba² ab-gub-ba a dug₄-ga-ab
- 2/70 še LU []
še lillan-ba¹ a dug₄-ga-ab
- 3/71 u₄ še-luh-ha-'an¹-si-a a nu-dug₄ sa-ma-[]
u₄ še luh¹-ha an-sù-a² a na-ab-bé-en sa-ma-ná-aš³ ba⁴-gig
- 4/72 u₄ še ba-ra-ak-dè ba-ab-x a dug₄-ab
u₄ še bir¹-ak-dè a²-ab-du₇-a a dug₄-ga-ab
- 5/73 ^{giš}bán^{an} u 1 silà-ta-àm x ba-an-tuku-tu[ku]
^{giš}ba-an-ba 1 silà še¹ ku²-dun ba³-tuku-tuku
- 6/74 še gur₁₀-ru-da-zu-dè še gur₁₀ nam-ba-gúrum-e
še gur₁₀-gur₁₀-ru¹-da-zu-dè še ur₅² nam-ba-gúr-e-en³
- 7/75 u₄ 'ál-ba-kam gur₁₀-ru-ab
u₄ á-ba-ka gur₁₀-gur₁₀-ra¹-ab
- 8/76 'x¹ 1-e lú še-zar kéš-da-e
TAK₄.IM 1-e ù¹ lú zar² kéš-da 1-àm³
- 9/77 ù lú 1-e igi kéš hu-mu-ra-ab-***
ù lú 1-e igi-ni-šè zar¹ hu-mu-ra-ab-sá-e²
- 10/78 |2-àm| hu-mu-ra-ab-gur₁₀-ra
3-àm hu-mu-ra-ab¹-gur₁₀-gur₁₀-re²
- 11/79 lú še de₅-de₅-ga še 'x¹-na na-na-e
lú še de₅-de₅-ga¹ še šu-huz² na-an-ak-e
- 12/80 še-garadin-na še na-an-si-il-si-le

5.2. Non-Nippur Texts

- še¹garadin-e² še na-an-si-il-si-il-le-e-ne³
- 13/81 kin-ag-ga-zu u₄-tur-gin₇
kin u₄-da-zu u₄ tur-ra¹-gin₇
- 14/82 usu di₄-di₄-lá-zu-ne
usu di₄-di₄-lá-zu-ne¹
- 15/82 ù usu lú še de₅-de₅-lá-zu-ne
ù lú še de₅-de₅-ga-zu²-ne
- 16/83 [š]id-bi-šè dul-lá zar-re-eš ná-bi
šid¹-bi du₆-ul-la²-ab zar-re-éš³ ná-a-ab?
- 17/84 [ki]n-zu mí-zu ha-ra-ab-dug₄
kin-zu mí-zi ha-ra-ab¹-dug₄²
- 18/85 [da]bin sumun tu_{ku}-a-ta
dabin¹ še sumun-e² tu_{ku}-a-ta
- 19/85a [x]-gu₇-zu-šè lú še mu-uš na-ab-ra-ra
ka¹-gu₇-zu-šè² lú še giš na-ab-ra-ra-an
- 20/ [x a]b-sín è-dè-na-zu
- 21/90 [-z]u KI.KAL dug₄-ga-ab
kislak-zu ki-gar dug₄-ga-ab¹
- 22/91 [har-r]a-an-gur-zu si sá-ab
har-ra-an-gur-zu si¹ sá-sá-ab
- 23/92 [gišm]ar-gíd-da-zu si ha-ra-ab-sá
gišmar-gíd-da-zu si ha-ra-ab-sá¹
- 24/93 [gud] mar-gíd-da-zu mur-gud gu₇-[x]¹
gud gišmar-gíd-da-zu mur gu₇-bí-ib
- 25/97 [] bad-zu kuš lá-lá-bi esir ha-ra-ab-TAG
zú gišbad-rá¹-zu kuš lá-lá-bi² esir³ ha-ra-ab⁷-sub₆-sub₆
- 26/86 [] ní-ha-ab
še¹zar-ra ne-ha-ab
- 27/87 [] u₄-šú-uš ha-ra-ab-dug₄
sizkúr še¹zar-ra u₄-šú-uš²-e ha-ra-ab³-dug₄
- 28/88 []-na-zu
u₄ še al-e₁₁-dè-en-na-zu-dè^{1 2}
- 29/89 [] [x]¹ ha-ra-ab-
lú še lá-lá¹-zu-ne 30 gín ha-ra-an²-ak-ak³
- 30/ (traces)

- col. iv
 3/103 [lú še ki¹-ta al-gub-bu-a² lú geštú-ga³ -g]a gub-^{ba}
 lú še ki¹-ta al-gub-bu-a² lú geštú-ga³ gub-ba-ab[?]
- 4/104 [h]a-ra-gub
 lú še DU-a¹ 2²-àm ha-ra³-gub-bu-uš⁴
- 5/105 [] ná-a-ab
 u₄ še ba-e¹-nir-ra² gidru³-šè ná-a-ab[?]
- 6/106 []-ga-ab
 sizkúr á¹ u₄-te-en² gi₆-ba dug₄-ga-ab
- 7/107 [bú]r-ra
 u₄ sa₉-a-gin₇ še búr-ra-ab
- 8/108 [] ^den-líl-lá
 na-de₅-ga¹ ^dnin²-urta dumu³ ^den-líl-lá-ke₄⁴
- 9/109 [-l]á-ke₄
^dnin-urta engar zi¹ ^den-líl-lá
- 10/109 [dùg]-ga
 zà-mí-zu dùg-ga-àm

Source C3 shows the paleographic and grammatical traits characteristic of late OB tablets, its date nevertheless is probably the Hammurabi or Samsuiluna reigns. The hand is very cursive, and the tablet has sporadic syllabic writings, and obvious misunderstandings. Note in 23/57 kud-lugúd-da for gú-tu-lu-gú-ta(g). The line sequence is quite close to the Nippur tradition, and there are textual similarities with the Ur text (e.g., line 73).

5.3.3. BM 80149 (D₃)

- 1/1 []-ra dumu-ni na mu-un-de₅-ga-àm
 u₄-ul-uru₄^{ru 1} dumu-ni na mu-un-de₅-ga-àm
- 2/2 [x x] dib-bé-da-zu-dè
 a-šà dib-bé-da-zu-dè
- 3/3 ^le₁-pa₅ du₆-du₆-dam igi kár-kár-ab
 e pa₅ du₆ du₈-ù-dè¹ igi kár-kár-ab²
- 4/ e-pa₅-zu gišmar-ru-um ki-sag-e-ba sa ha-ra-ab-lá
 a-šà a-dé-a-zu-dè¹ a-bi šà-ba² nu-íl³
- 5/ gál-tak₄-tak₄ a-šà-ga-zu gú? gá-gá-ak
- 6/ gú íd-zu a-KA gán-šè a hé-gíd-gíd-dè

5.2. Non-Nippur Texts

- 7/ il-la a-šà-ga-zu a-ba mar²-zu a-gàr a 'x x'
- 8/ a-šà kur₆ a sed₄ in-dab₅ gán lugal-bi-i[r x x]
- 9/4? a-šà a-dug₄-a-zu-dè 'a' []
a-šà a-dé-a-zu-dè¹ a-bi šà-ba² nu-íl³
- 10/5 u₄ a-ta []
u₄ a¹-ta im-mu-e-a-e₁₁-dè-a²
- 11/6 'ki-duru₅-ba e'-[]
a-šà ki-duru₅-bi en-nu-un ak-ab¹ ki-še-er a-ra-ab-tuku
- 12/7? []
- 13/8 [x-KI]N-bi ù-bí-[] 'x x' []
ú-sag₁₁¹-bi ù-bí²-zé a-šà ki-gar ù-bí-dug₄
- 14/9 10-àm uruda_{sal} 2/3 ma-na 'x x' []
10-àm¹ uruda_{gín}-sal² 2/3 ma-na-ta³ sá-a-ab
- 15/10 al-šub-bé umbin-bi ha-ra-šú-šú 'sa ha-ra-ab¹-lá-lá
giš¹al-šub¹-bé umbin gud ha-ra²-šú-šú³ sa ha-ra-ab-lá-lá
- 16/11 ki ka-sal-la-bi u₄-ta ha-'ra-ab'-[]
ki ka-sal-la-bi ú-tag ha-ra¹-tag-tag
- 17/12 gú a-šà-ga ub-ta 4-bi al-e ha-ra-ab-[]
en-na a-šà-ga al-šeg₆-šeg₆-e-da¹ teš a²-ra-ab-sì-ke³-a
- 18/13 en-na a-šà-ga al-šeg₆-šeg₆-dè téš-ba 'x' []
en-na a-šà-ga al-šeg₆-šeg₆-e-da¹ téš a²-ra-ab-sì-ke³-a
- 19/14 giš¹šu-kár-zu sa a-ra-ab-[]
giš¹šu-kár-zu sa ha-ra-ab-gi₄-a¹
- 20/15 giš¹šudun-zu a-šita-bi ha-ra-ak-[x]
giš¹šudun-zu á-šita₄-a-bi¹ ha-ra²-kéš
- 21/18 dumu gašam lú šu ha-ra-'ab'-ak-[x]
dumu gašam-ta¹ dùg² ha-ra-ab-ak-eš^{3 4}
- 22/19 uruda_{kin}-sal-a uruda_{NUN.ME.TAG} kin-zu 'x x' []
uruda_{gín} uruda_{bulug} uruda_{šum-me}¹ giš¹šu-kár-zu [á²-z]u si ha-ra-ab-sá-e²
- 23/20 sag-ta níg-ba-DU bar-e₁₁-dè ka-dù 'x x x' []
kuš¹sag-kéš¹ kuš¹bar-e₁₁²-dè kuš¹ka-dù³ kuš¹usàn sag-zu⁷ hé⁷-ha-za
- 24/21 gi¹ba-an-du₈ káb-me hu-mu-ak á kalag-ga h[u-]
gi¹ba-an-du₈-zu KA¹ hu-mu-ra-ab²-ak á kalag-ga hu-mu-ra-an³-ak-e

- 25/16 [kuš]usàn gibil-ka kak-a ha-ra-ab-lá
kušusàn gibil-zu giš¹kak-a¹ ha-ra-ab-lá
- 26/17 [kuš]usàn sumun-zu [m]ud lá-lá-bi
kušusàn sumun-zu giš¹ mud lá-lá-a²-bi
- 27/23 [x] 'x' gud diri tuku-tuku
gud giš¹apin gud diri-ga² a³-ab-tuku-a
- 28/24 gud gud-da dūr bí-ib-til-ak¹
gud gud-da dur bí¹-ib-tu-lu-a²
- 29/ si gud kalag-ga á-dah hu-mu-un-ak
- 30/ <gud apin> lugal-bi-ir hé-em-sì-sì-ge {ak}
- 31/ igi-bi 'mur'-gud-bi hé-em-dùg-dùg-ge {ak}
- 32/25 gud apin gud apin-na ba-ab-diri
giš¹apin-bi giš¹apin-na a-ab-diri
- 33/ u₄-dè éš-gàr-bi DI-e-'x'
- 34/ gud apin lugal-bi-ir nu-sì-sì-ge-'x'
- 35/ igi-bi mur-gud-bi nu-dùg-dùg-ge-'x'
- 36/ gud apin 'x' zag ba-tak₄-tak₄-da éš¹-gàr-bi mu-'DI-e'
- 37/26 éš-gàr giš¹apin 1-e 180 iku a-na-àm
'és-gàr' giš¹apin 1-e¹ 180² iku-àm³
- 38/27 'ù' za-e 18+90 iku 'x' [x x] 'x' ru 'x-x'
za-e 144 iku¹ giš² dù-ba³-ab
- 39/29 18 iku [gu]r ba-gá-gá-àm
18 iku-ba 0.3 še gur¹ ba-an²-gá-gá
- 40/30 'x' []-ab ù giš bí-ak
usu giš¹apin 1-e² a-ša giš¹bar-dil-bi ù-bí-ak
- 41/31 giš¹bar-dil-bi ME 'giš¹apin-si-ga? ù-bí-ak APIN-ab
giš¹bar-dil-bi¹ giš¹apin-túg-sig₁₈ ù-bí-ak² túg-gur-ra-ab
- col. ii
- 42/32 giš-ùr-ra giš-gi₄-a giš-[pe]š-a
giš ùr-ra-ab¹ giš-gi₄-a-ab giš peš-bí-ib
- 43/33 ki-SAG-bi níg-gul-ta [(x)] 'x' ù-bí-[x]
ki-šúr-bi giš¹níg-gul-ta giš²KAK.UD-aš³ ù-bí-ak

5.2. Non-Nippur Texts

- 44/34 mud níg-gul-ta sag-zu 'hé¹-en-za¹ níg-gul 'x¹ []
 gis¹mud gis¹ níg-gul-zu sag-za² hé-ha-za³ níg al-di-šè na⁵-du-un
- 45/35 kin-ak-bi a-gub-bi 'ù¹-bí-ak
 kin-ak-zu-a¹ ugu-ba² ù-bí-dé³
- 46/36 kin-ak-zu-šè gá-l[a na]m-tag-ga
 kin-ak¹-zu-šè gá-la nam-ba-an-dag-ge²
- 47/37 a-šà kin-bi *na-ab-bé
 a-šà kin-zu ak¹ na-an-na-ab-bé^{2 3}
- 48/38 u₄ mul an-na šu ní-ba du₇-du₇
 u₄ mul an-na šu im-ma-ab-du₇-a¹-ta
- 49/39 10-àm 'x x¹ [a]-'šà¹ á zi-zi igi ba-gig
 10-àm¹ á gud a-šà zi-zi-i-da-šè² igi-zu³ nam-ba-e-gíd-i³
- 50/40? [] 'ha¹-r[a-a]b-lá
 gis¹ al dù-a-bi² ha-ra-ab-ak-e
- 51/41 []-e-dè
 a-šà uru₄^{ru1}-da-zu-dè
- 52/42? [] 'gu₄-r-ud
 gis¹apin-zu gu ha-ra-ab¹-dúb
- 53/? [] 'x¹-e-dè
- 54-65 (isolated signs only)
- 66/56 [] 'x¹ uru₄ 'x¹ []
 ki ab-sín¹ gis²šibir i³-uru₄^{ru}-a[?] ab-sín[?] si-sá uru₄^{ru6}-ab
- 67/57 ab-'sín si-sá¹ gu₄-lu []
 ab-sín¹ lu-gú²-zu si³ ha-ra-ab-sá
- 68/58 ab-'sín lu-gú[?]¹-zu si-sá []
 ab-sín¹ lu-gú²-zu si³ ha-ra-ab-sá
- 69/59 ab-'sín x¹ ka-iz-bi []
 ab-sín¹ ab-ki-iz-bi² DU-a³ gán kud-rá-zu[?] uru₄^{ru5}-ab
- 70/60 lag-bi 'ha¹-ra-an-[]
 lag¹-bi ha-ra²-de₅-de₅
- 71/62 ki 'x x¹-bi ab-sín []
 ki sahar ka-tab-bi¹ ab-sín ha-ra-sig-sig²
- 72/61 ki! 'sahar x-bi¹ ab-sín []
 ki sahar uš-bi¹ ab-sín ha-ra-ni-ib-ra

The Farmer's Instructions

- 73/63 henbúr-šè¹ []
 henbúr-šè a-ra-sag₉
- 74/64 ʰu₄ henbúr-e ki-dar¹-[]
 u₄ henbúr-e ki im-ma-ab-dar-ra-ta
- 75/65 ʰsizkúr x x¹ []
 sizkúr ^dnin-kilim-ke₄ dug₄-ga-ab
- 76/66 ʰzú x^{mušen¹}-r[a]
 zú bir₅^{mušen-ra¹} bal-e²-eb
- 77/67 u₄ še ʰx x¹ []
 u₄ še¹ ka-sal-la² ab-sín-na³-ka a-ab-diri
- 78/69 še LUGAL |x| []
 u₄ še ^gkid-má-šà-ga¹-ba² ab-gub-ba a dug₄-ga-ab
- 79/ ʰx x¹ []
 (break of ca. 6 lines)
- col. iii
- 86/75 ʰu₄¹ []
 u₄ á-ba-ka gur₁₀-gur₁₀-ra¹-ab
- 87/76 dag []
 TAK₄.IM 1-e ù¹ lú zar² kéš-da 1-àm³
- 88/77 ù l[ú]
 ù lú 1-e igi-ni-šè zar¹ hu-mu-ra-ab-sá-e²
- 89/78 [x]-l¹am¹ []
 3-àm hu-mu-ra-ab¹-gur₁₀-gur₁₀-re²
- 90/79 ʰlú¹ []
 lú še de₅-de₅-ga¹ še šu-huz² na-an-ak-e
- 91/80 še garadin en? []
 še¹ garadin-e² še na-an-si-il-si-il-le-e-ne³
- 92/81 kin u₄-da-zu []
 kin u₄-da-zu u₄ tur-ra¹-gin₇
- 93/82 Á.KAL¹ di₄-di₄-lá-z[u]
 usu di₄-di₄-lá-zu-ne¹ ù lú še de₅-de₅-ga-zu²-ne
- 94/? ù-da-ke₄ lú []
- 95/83 x-bi dul(U)-ab []
 šid¹-bi du₆-ul-la²-ab zar-re-éš³ ná-a-ab?

5.2. Non-Nippur Texts

- 96/85 zì-da sumún []
dabin¹ še sumun-e² tuku-a-ta
- 97/ lú KA-KA-zu-ne []
- 98/85a lú KA-KA-zu-šè []
ka¹-gu₇-zu-šè² lú še giš na-ab-ra-ra-an
- 99/86 še SE-ra []
še^ezar-ra ne-ha-ab
- 100/87 sizkur sar-ra u₄-šú-[x^l] []
sizkúr^{še} ¹zar-ra u₄-šú-uš²-e ha-ra-ab³-dug₄
- 101/88 u₄ še al-dú-a []
u₄ še al-e₁₁-dè-en-na-zu-dè¹ ²
- 102/89 lú še lá-lá-zu-šè 30 ^lx^l []
lú še lá-lá¹-zu-ne 30 gín ha-ra-an²-ak-ak³
- 103/90 [K]LUD-šè ki-dug₄-ga []
kislah-zu ki-gar dug₄-ga-ab¹
- 104/91 [har-ra-a]n-kal-zu []
har-ra-an-gur-zu si¹ sá-sá-ab
- 105/92 ^lgiš[]-fda-zu[]
^{giš}mar-gíd-da-zu si ha-ra-ab-sá¹
- 106/93 gud ^{giš}[]
gud ^{giš}mar-gíd-da-zu mur gu₇-bí-ib
- 107/97 zú ^{giš}bad-zu lá-lá-b[i]
zú ^{giš}bad-rá¹-zu kuš lá-lá-bi² esír³ ha'-ra-ab[?]-sub₆-sub₆
- 108/94 su₇ bad-zu u₄ 5-kam []
su₇ du₈-a-zu u₄ 5-àm ha-ba-ne-ha¹
- 109/95 su₇ ^lbad x^l-zu-šè níg-ku-ra du-ni [(...)]
su₇ bad-rá¹-zu-dè níg-ur₅²-ra du₈-ni
- 110/102 u₄ še al-dú-a-na-[]
u₄¹ še al-lá-e-na²-zu³
- 111/101 sizkúr še nu-nir-ra dug₄-g[a-ab]
sizkúr^{še} ¹nu-nir-ra dug₄-ga-ab
- 112/100 u₄ še ba-e-ne-[]
u₄ še ki¹ ba-e-ni²-ús-sa³
- 113/ sizkúr še nir-ra dug₄-ga-[ab]

- 114/102? u₄ ¹xl-NE-¹xl-[]
u₄ ¹še al-lá-e-na²-zu³
- 115/103 lú še ki-ta al-gub-a lú ¹xl []
lú še ki¹-ta al-gub-bu-a² lú gestú-ga³ gub-ba-ab?
- 116/104 lú še DU-za 2-ta ha-ra-gu[b]
lú še DU-a¹ 2²-àm ha-ra³-gub-bu-uš⁴
- 117/105 u₄ še nir-da pa-šè(KU) ná-a
u₄ še ba-e¹-nir-ra² gidru³-šè ná-a-ab?
- 118/106 ¹sizkúr¹ en-te-na-ke₄ dug₄-ga-ab
sizkúr á¹ u₄-te-en² gi₆-ba dug₄-ga-ab
- 119/107 u₄ sa₉-¹gin₇ še bi-úr
u₄ sa₉-a-gin₇ še búr-ra-ab
- 120/108 na-de₅ ¹d_{nin}-urta dumu ¹d_{en}-líl-lá
na-de₅-ga¹ ¹d_{nin}²-urta dumu³ ¹d_{en}-líl-lá-ke₄
- 121/109 ¹d_{nin}-urta engar [] ¹d_{en}-líl-lá
¹d_{nin}-urta engar zi¹ ¹d_{en}-líl-lá
- 122/109 zà-mí-zu mah-àm
zà-mí-zu dùg-ga-àm

BM 80149 is written in a late OB hand with many signs malformed or with inconsistent shapes. Thus, for instance, the sign APIN lacks almost always the final vertical and it becomes indistinguishable from AK. One can find some clear GÚ or GA, but more often than not GUD, BI, GA, and even GÚ cannot be told apart. ITU, SUM, and SU₇ are at times identical. In iii 9, KAL has a rather peculiar shape. The scribe wrote a clear ERÍN instead of NA in 47/37. Since the reading is practically always confirmed by other sources, no further discussion of paleographic oddities is included here. Homophonic replacements are frequent. Some belong to well-known types, like 3/3 du₆ = du₈, or 46/36 tag = dag; others are more remarkable: 20/15 a-šita = á-šita₄, 28/24 tìl-a(k)/a₅ = tu-lu-a, 45/35 a-gub-bi for a/ugu-bi (a similar variant is found in A₄ in the same place), 49/39 gig = gíd, 52/42 gu₄-ud = dúb, 69/59 ka-iz = ki-iz, 87/76 dag = TAK₄ (but see commentary to this line), 96/85 sumún = sumun, and 119/107 bi-úr = búr. Signs may be omitted, one would expect kin-sal in 14/9, instead of sal alone (see remark to line 22/19), and there are superfluous signs, like the apparent AK at the end of 30f. Source D₃ is characterized furthermore by its interpolations (lines 4-8 and 29-31, 33-36, with isolated lines elsewhere), for which the only known parallels in the FI tradition are found in G₃, and quite possibly in B₃. The interpolated text, in incorrect Sumerian, is hard to understand and its translation is here tentative.

4 The ... of the shovel will ... your canals and levees.

5 ... the opening of your field.

6 The banks of your canal should bring the water higher than the field.

7 The higher places of your field ...

8 The field will get (its) share of cool water, the field will ... to its owner.

Line 4. Note the Akkadianized form of the word for "shovel." The *mar*, Akk. *marru*, is very rarely mentioned in Sargonic (*MAD* 1 325:6, after *gišal-sag*), and in Ur III (e.g. 3 *urudamar* 2/3 [ma]-[na-ta] *ITT* 5 6789:4; 60 *gišù-suh₅* *mar lù-šè* 'for mixing shovels'), and infrequent in literary texts; it is quoted next to the *gišbad* in *VAS* 10 179 iii 3' (with Ur III dupl., and see comments to main text, line 97); the *mar še ùr* appears in *Silver and Copper* B 121 (compare *Hh* VII B 6ff.), and a literary enumeration of essential agricultural tools in *JCS* 28 (1967) 280f.:11f., 54 lists *gišal*, *gišmar*, *gišdupsik*, and *gišapin*. There is abundant lexical information on this tool: *Hh* VII B 1ff. devotes no less than thirty-four lines to its different types and parts. All the older evidence suggests a shovel, not a spade. It is only in NB texts that the *marru* is associated with the verb *herû* "to dig." See, for further discussion, Thureau-Dangin 1927:147, de Mecquenem and Dossin, 1938:129., and Landsberger and Bauer 1927:93. I have no suggestions for the *ki-sag-e-ba* (the -e- is certain) which follows *mar-ru-um*, except to say that perhaps it is **ki-sag* "width," contrasting with an equally hypothetical **ki-ús* "length;" a defective writing of *SAG*, for *SAG-gunû*, representing *ki-šûr*, see line 33, does not seem to fit the context. Even the antecedent of -ba is unclear, is it the canal or the shovel? For *sa-lá*, see commentary to line 10. One may wonder whether the scribe was not translating Akk. *šušûru*, which has two meanings "to set right" (Sum. *si-sá*) and "to sweep" (Sum. *sa-lá*), and wrongly used the second Sumerian equivalent instead of the first.

Line 5. The verb *gál-tak₄* 'to open' is used, besides more literal meanings, to designate the first work in the fields, for instance (the Hoe is speaking) "I come out to the fields before you, Plow, I initiate the opening of the fields (*a-ša gál-tak₄-tak₄*) for you" *Hoe and Plow* 85f., and, in a OB contract from Nippur, a field is rented for three years 'to be opened' (*gál-tak₄-tak₄-dè*) 3N-T 247:6 (similarly in *ARN* 11:5f., for instance). I do not know how to translate here *gú-gá-gá*, "to submit," or "to gather"?

Line 6. This line seems to refer to the proper level of the canal waters in relation to the lower level of the fields. This interpretation assumes that *a-KA* stands for *a/ugu*, see below 45/35 for an alternative writing of this word. The verb *gíd* must translate here Akk. *šadādu* "to pull;" its more precise meaning "to divert water from an irrigation channel" seems to be only NB (*CAD* Š/1 27 4 d).

Line 7. The translation takes *il-la*, despite the writing with -la rather than -lá, as the word that appears in the pair *il-lá : dùn-lá* "elevation" and "depression" (Akk. *mūlū* and *mušpalu*); Proto-Izi I 496f.; id. bil. D iv 8f.; and, in context, *ZA* 65 (1975) 192:141; *PBS* 12 52 iv 10; compare *Lugal* 85, with *du₆-du₆* "mounds" instead of *il-lá*. The second half of the line remains understandable.

Line 8. Compare lines 30/ and 34/.

Line 14/9. One would expect <kin>-sal, for *gín-sal*, see line 22/19.

Line 22/18. The writing *gašam lú šu* is a curious one. It goes back to the name of the series *lú = šu* which was also known as "(the series) of the artisans" (*gašam*), see discussion in *Civil* 1985:74 ad 14. The scribe, remembering the school dialogues where both terms interchange freely, uses both of them here at the same time, in an inappropriate context.

Line 22/19. Either the scribe wrote *kin-sal*, remembering line 14/9, where however he incorrectly omitted the *kin*, or the *sal* takes the place of the expected *bulug* (see commentary to line 19 for the topic involved). In the latter case it would be a case of visual error (*SALA* for *BULUG*), a type of error infrequent on the tablets. The scribe writes incorrectly *NUN.ME.TAG* (as in the preceding line) instead of the usual *TAG.ME* "saw."

29 The horns of the strong oxen should help.
30 Let the plow oxen look good to their owner.
31 Let their eyes(?) and their fodder be good.
32 = line 25 of main text
33 If they ... their appointed task,
34 the plow oxen will not look good to their owner,
35 their eyes(?) and their fodder will not be good.
36 The plow oxen that ... have to be pushed (away),
they will ... their task.

Line 30. The two words *gud apin* have been inserted to keep the parallelism with line 34. The translation takes *si-ge* as a non-standard writing of *sig₅/sag₉*.

Lines 33-36. The conditions under which the two recommendations of lines 30f. become negative statements are not clear and the logic of these lines is not apparent. The translation of line 36 takes zag—tak₄ as equivalent to zag—tag, but note that the word division is uncertain: zag-ba # tak₄ is marginally better from the point of view of grammar.

In the line numbers: H 139 (+) H 178 (source A₄) = A, and H 110 (source B₄) = B

A 4' ki-duru₅-bi en-na tuku [
6 a-ša ki-duru₅-bi en-nu-un ak-ab¹ ki-še-er a-ra-ab-tuku

5.2. Non-Nippur Texts

- A 5' gú suhub gir na-ra-am-[]
7 gud suhúb¹ gir na-ra-ab-zukum-e
- A 6' ú-ság-a-bi ú-bi-zu []
8 ú-sag₁₁¹-bi ù-bí²-zé a-šà ki-gar ù-bí-dug₄
- A 7' 10-àm du₁₀-ús-àm 2/3 ma-na []
9 10-àm¹ urudagin-sal² 2/3 ma-na-ta³ sá-a-ab
- A 8' al-šub-bé umbin-bi ha-ra-šú-šú s[á
10 gišal-šub¹-bé umbin gud ha-ra²-šú-šú³ sa ha-ra-ab-lá-lá]
- A 9' ki-kal-sal-la-a-bi u₄-ta []
11 ki ka-sal-la-bi ú-tag ha-ra¹-tag-tag
- A 10' gú a-šà-ga ub₄-ta 4-bi al-la []
12 gú a-šà-ga ub-da-4-ba¹ gišal-e² ha-ra-nigin³
- A 11' en-na a-šà-ga aš-ši-šè(TÚG)-dè téš àm-[]
13 en-na a-šà-ga al-šeg₆-šeg₆-e-da¹ téš a²-ra-ab-sì-ke³-a]
- A 12' (traces) ha-ra-ab-[]
14 giššu-kár-zu sa ha-ra-ab-gi₄-a¹
- A 13' [] ḥal-ra-ab-[]
15 giššudun-zu á-šita₄-a-bi¹ ha-ra²-kéš
- (gap)
- B 1' [d]iri ha-r[a-] (H 110 obv.)
23 gud giš¹ apin gud diri-ga² a³-ab-tuku-a
- B 2' [] ḫ¹ ba ḫ¹ [x]-[a] []
24 gud gud-da dur bí¹-ib-tu-lu-a²
- B 3' [] apin-n[a] ab-dir[i]
25 gišapin-bi gišapin-na a-ab-diri
- B 4' [] apin 1-àm 18 iku a-šà []
26 [és-gàr] gišapin 1-e¹ 180² iku-àm³
- B 5' [] ḫ¹ iku-àm dù-da-[ga] -a[b]
27 za-e 144 iku¹ giš² dù-ba³-ab
- A 1' ḫ¹ 18 iku¹ [] (H 178 obv.)
B 6' [i]ku 1-[à]m šu-ši gur še ba-gá-g[á] (H 110 obv.)
29 18 iku-ba 0.3 še gur¹ ba-an²-gá-gá

- A 2' Á.KAL gišapin '1-a' []
 B 7' [] gišapin 1-àm a-ša gišbar-dil-ta 'ú1-[]
 30 usu giš¹apin 1-e² a-ša gišbar-dil-bi ù-bí-ak
- A 3' gišbar-dil-ta gišapin-túg-ús-ka-a ú-bi-'x x x' []
 B 8' [] 'gišapin1-'x-ús?-ka' []
 31 gišbar-dil-bi¹ gišapin-túg-sig₁₈ ù-bí-ak² túg-gur-ra-ab
- A 4' giš ùr-ra giš gi₄-a giš! (o.e.)bé-éš-bé-éš
 B 9' []-'x' giš ga-a []
 32 giš ùr-ra-ab¹ giš gi₄-a-ab giš peš-bí-ib
- A 5' ki-šúr-bi ní-gul-da kak-da-ga-še ú-bi-ja
 B 10' ki-[] ní-gul kak-da-ga-še []
 33 ki-šúr-bi giš ní-gul-ta gišKAK.UD-aš ù-bí-ak
- A 6' mud giš ní-gul-da sag-du hé-eb-kéš-še! ní-gá-al-da-še na-du
 B 11' mud []-'da' sag-du-a hé-eb-[]-še na-du
 34 gišmud giš ní-gul-zu sag-za hé-ha-za ní-g al-di-sè na-du-un
- A 7' kin-ak-a-zu-še a-gub-ba bí-in-dug₄
 B 12' kin-[]-'x' [] gu]b-ba TÚG b[í-]
 35 kin-ak-zu-a ugu-ba ù-bí-dé
- A 8' kin-ak-a-zu-še gá-la na-ba-an-da-an-dag
 B 13' 'kin?' []-zu-še [gá]-la []
 36 kin-ak-zu-še gá-la nam-ba-an-dag-ge
- A 9' a-ša kin-gá-bi na-ab-bé-e
 B 14' [] ní-g ak n[a-a]b-[]
 37 a-ša kin-zu ak¹ na-an-na-ab-bé^{2 3}
- A 10' u₄ mul an-na šu im-ma-ab-da-a-ta
 B 15' [] an-na šu 'im-ma1-du₇-a1-[]
 38 u₄ mul an-na šu im-ma-ab-du₇-a¹-ta
- A 11' u₄-àm ma-ag-ra a-ša zi-zi-ta-dè igi-zu nam-ba-e-túm-mu!
 B 16' [] a-š[à] zi-zi-da-zu []
 39 10-àm¹ á gud a-ša zi-zi-i-da-še² igi-zu³ nam-ba-e-gíd-i³
- A 17' []-b]i ha-ra-[]
 B 12' al du₅-bi ha-ra-ap-pa-ke₄
 40 giš¹ al dù-a-bi² ha-ra-ab-ak-e
- A 13' a-ša ùr-ra-da-zu-un-dè
 B 18' []-'x' da-'zu1-[]
 41 a-ša uru₄^{ru1}-da-zu-dè
- A 14' gišapin-zu gú ha-ra-dúb
 B 19' [] ha-ra-[]
 42 gišapin-zu gu ha-ra-ab¹-dúb

5.2. Non-Nippur Texts

- A 15' gištam-zu kak-sal-la šub-ne
 B 20' [] šub []
 44 gišdam-zu giškak-sal-la šub-ni
- A 16' giška-šú-a gišapin li-um-ma šub-ne
 B 21' [-i]m-ma []
 43 giška-šú gišapin-na-zu kuš¹im-du²-mu šub-ni
- A 17' gišli-um-zu á hé-eb-tal-tal
 45 gišli-um-zu á¹ hé²-tál-tál
- A 18' ab-sín-zu gub-bu-¹ub¹
 45 ab-sín³-zu gub-ba²-ab
- A 19' a-šà ùr-da-zu-un-dè
 48 a-sà uru⁴ru-da-zu-dè¹
- A 20' lú še-numun gá-ra-zu igi-ni mu-un-gar
 49 lú še-numun gar-ra-zu¹ igi-zu² gar³-ni
- A 21' šu-si 2(MIN)-ta-àm ŠE-na hé-en-šub
 50 2 šu-si-ta-àm¹ dašnan hé-en²-šub
- A 22' [u]š 1 ninda-ta-àm še gín 1-àm
 51 1 ninda uš-ta¹ 1 gín še² ha-ra-gar³
- A 23' [] ¹ab-sín¹ 8-àm gub-bu-ub
 46 1 ninda uš¹ ab-sín 8² gub-ba-ab
- (gap)
- B 2' [] gišapin-n[a] (H 110 rev.)
 53 giš¹níg-ku⁵ giš²eme giš³apin-na-zu kúr-ra-ab
- B 3' [-d]u?-lu-a-bi dūr-re [-a]b
 54 tukum-bi dur a-ab¹-tu-lu dur tur-ra-ab²
- B 4' [ab-sí]n ab-kás-a da-a gán kúr-[-a]b
 59 ab-sín¹ ab-ki-iz-bi² DU-a³ gán kud-rá-zu[?] uru⁴ru⁵-ab
- B 5' [ki ab-sí]n si-¹si¹ ur⁴-ra-ab ab-sín [] ¹ur⁴-ra-ab
 55 ki ab-sín¹ si-sá i²-uru⁴ru-a³ ab-sín⁴ giššibir uru⁴ru-ab⁵
- B 6' [ki a]b-sín giš[H]A?-na ur⁴-¹ra-ab¹ [] si-si ¹ur⁴-ra-ab
 56 ki ab-sín¹ giš²šibir i³-uru⁴ru-a[?] ab-sín[?] si-sá uru⁴ru⁶-ab
- B 7' [ab-sí]n si-s[i] [gú¹-diri 'x x-a hu-mu¹-ra-gá-gá
 57 ab-sín¹ si-sá² gú-tu-lu³ gú⁴-TAG mu-ra⁵-gá-gá⁶
- B 8' [-g]ú-zu si ha-ra-ab-si
 58 ab-sín¹ lu-gú²-zu si³ ha-ra-ab-sá

The Farmer's Instructions

B 9'	ki [-b]i ab-sín ha-ra-[x-s]i-sig	
62	ki sahar ka-tab-bi ab-sín ha-ra-sig-sig	
A 1'	[ab-sí]n ha-ra-[]	(H 178 rev.)
B 10'	ki sah[ar -b]i ab-sín ha-ra-ni-[ra-r]a	(H 110 rev.)
61	ki sahar uš-bi ¹ ab-sín ha-ra-ni-ib-ra	
A 2'	lag-bi ha-ra- ¹ de-de ¹	
B 11'	lag-[bi] ha-ra-de-[(x)]-dè	
60	lag ¹ -bi ha-ra ² -de ₅ -de ₅	
A 3'	háb!-bur-šè ha-ra-sig ₅	
B 12'	še h[a-bu]r-še ha-ra-[(x)-sa]g ₉	
63	henbúr-šè a-ra-sag ₉	
A 4'	u ₄ háb-bur šè ki-gá-da-re-da sizkúr ^d en-líl-lá-a-bi da-ga-ab	
B 13'	[u ₄] ha-[b]ur-še [kin]-gá-da-re-d[a sizkú]r ni-iq- ^d en-líl-lá-bi da-ga-ab	
64	u ₄ henbúr-e ki im-ma-ab-dar-ra-ta 65 sizkúr ^d nin-kilim-ke ₄ dug ₄ -ga-ab	
A 5'	zú buru ₅ šed-bi-ib	
B 14'	zú b[uru ₅] š[ed-bi-i]b	
66	zú bir ₅ ^{mušen} -ra ¹ bal-e ² -eb	
A 6'	u ₄ še ka-sal-la ab-diri še-numun-sag-gá-šè da-ga-ab	
B 15'	u ₄ še k[a-sa]l-l[¹ a ab- ¹ diri še-numun! s[ag-g]á-šè da-ga-ab	
67	u ₄ še ¹ ka-sal-la ² ab-sín-na ³ -ka a-ab-diri 68 a numun sag-gá-ke ₄ ¹ dug ₄ -ga-ab ²	
A 7'	u ₄ še IM [?] .ME-ba-gub-bé da-ga-ab	
B 16'	[]- ¹ x ¹ -ma ba-[da-g]a-ab	
69	u ₄ še ^g kid-má-šà-ga ¹ -ba ² ab-gub-ba a dug ₄ -ga-ab	
A 8'	u ₄ še-luh-ha-an-ŠEŠ.BU-àm na-bé sa-ma-ne-šè ba-gin	
B 17'	[a]n-sù a na-b[é] ba-gig	
71	u ₄ še luh ¹ -ha an-sù-a ² a na-ab-bé-en sa-ma-ná-aš ³ ba ⁴ -gig	
A 9'	u ₄ še búr-ke ₄ -ta ba-gub-bé da-ga-ab	
B 18'	[] ¹ ba ¹ -gub-bé []	
72	u ₄ še bir ¹ -ak-dè a ² -ab-du ₇ -a a dug ₄ -ga-ab	
A 10'	1/2 ba-nam-šè 1 silà dun! ba-an-tak ₄ -tak ₄	
B 19'	[] ¹ silà dun! b[a-]	
73	^g iš ba-an-ba 1 silà še ¹ ku ² -dun ba ³ -tuk-tuk	
A 11'	še ùr-da-zu-un-dè še-zu nam-da-DU?(o.e.)-ru-me-en	
74	še gur ₁₀ -gur ₁₀ -ru ¹ -da-zu-dè še ur ₅ ² nam-ba-gúr-e-en ³	
A 12'	u ₄ á-ba-kam gur ₁₀ -gur ₁₀ -ra-ab	
75	u ₄ á-ba-ka gur ₁₀ -gur ₁₀ -ra ¹ -ab	
A 13'	uš 1-àm lú za-re-eš hu-mu-un-kéš-dè	
76	TAK ₄ .IM 1-e ù ¹ lú zar ² kéš-da 1-àm ³	

A 14' ù lú 1-àm lú za-re-eš hu-mu-ra-gá-gá
77 ù lú 1-e igi-ni-šè zar¹ hu-mu-ra-ab-sá-e²

A 15' 3-àm hu-mu-ra-ab-gur₁₀-gur₁₀-NE
78 3-àm hu-mu-ra-ab¹-gur₁₀-gur₁₀-re²

A 16' l[ú še] de₅-de₅-ga-zu še hu-mu-na-ke₄
79 lú še de₅-de₅-ga¹ še šu-huz² na-an-ak-e

A 17' [] še nam-si-il-si-le-ne
80 še¹ garadin-e² še na-an-si-il-si-il-le-e-ne³

A 18' [-g]in₇ Á.KAL de₅-de₅-ga-zu-ta ù lú de₅-de₅-zu-ta
81 kin u₄-da-zu u₄ tur-ra¹-gin₇ 82 usu di₄-di₄-lá-zu-ne¹ ù lú še de₅-de₅-ga-zu²-ne

A 19' [za]-[re-eš¹ na-a
83 šid¹-bi du₆-ul-la²-ab zar-re-éš³ ná-a-ab?

A 20' []-[x]

A 1' 93	gud ^{giš} mar-g[íd gud ^{gš} mar-gíd-da-zu mur gu ₇ -bí-ib ¹	]	(H 139 rev.)
A 2'/--	lú še 'x' [	]	
A 3' 103	lú še ke ₄ -ta al-gin-na-zu l[ú lú še ki ¹ -ta al-gub-bu-a ² lú geštú-ga ³ gub-ba-ab [?]	]	
A 4' 94	su ₇ -da-zu u ₄ 5-àm ha-r[a- su ₇ du ₈ -a-zu u ₄ 5-àm ha-ba-ne-ha ¹	]	
A 5' 95	'su ₇ - bal-da-a-zu-[x] níg-NE-ra [su ₇ bad-rá ¹ -zu-dè níg-ur ₅ ² -ra du ₈ -ni	]	
A 6' 97	zú ^{giš} bad-da-zu 'esir' ha-ra-ab-<...> kuš lá-l[á] zú ^{giš} bad-rá ¹ -zu kuš lá-lá-bi ² esir ³ ha-ra-ab [?] -sub ₆ -sub ₆	]	
A 7' 98	gud gud gúr-m[a gud dúr-dúr-ra ¹ -zu-dè	]	
A 8' 104?	lú še-da-è 2(MÌN)-àm 'x' [lú še DU-a ¹ 2 ² -àm ha-ra ³ -gub-bu-uš ⁴	]	
A 9' 99	l[ú ¹ še [lú še bad ¹ -rá ² -zu ³ usu [?] hé-en-dè-gub [?]	]	
A 10'	[x x] 'x' DU na DU 3? [	]	

edge

1' [] 'x¹-zu
 2' [] 'x¹ dⁿin-urta 3' [] d^en-lil-lá
 108 na-de₅-ga¹ dⁿin-urta dumu den-lil-lá-ke₄
 (traces of a column on the right)

These tablets have been studied in detail by Cavigneaux 1991. The reader is referred to his work for further details. I believe that the ni-ik in B 13'/64 is part of a misinterpretation of nig-kilim (> ni-ik-/illil/), rather than a gloss to sizkúr. The scribe of A, puzzled by the expression, omitted the "gloss."

5.3.5. Minor Sources

5.3.5.1. K 6697 + K 8069 (E₃)

Very little is preserved from this source; while the other side, with the *Song of the Hoe*, is relatively well preserved, the surface of the side with FI is completely gone, except for a few signs.

rev. col. i

1/1 U[D]
 2/2 a-š[à]
 3/3 e-p[a₅]
 4/4 a GÁN [] ' x x¹ []
 5/5 'u₄ a¹-t[a] 'x ba-e¹-è
 6/6 [-a]b 'ki-še-er¹ a-ra-ab-tuku
 7/7 []-'x¹-e

One can still recognize: [...]-lá-lá, [...-t]ag, [...] 'x x abl-si-ke-a (lines 10, 11, 13), and [...]-ke₄-eš (line 18). On col. ii 1ff. there are traces of lines 57-60.

5.3.5.2. VAT 17412 (VAS 24 69) = F₃

1 [] u]ru₄-le?¹ []
 u₄-ul-uru₄^{ru} dumu-ni na mu-un-de₅-ga-àm
 2 [] d[ib?]
 a-šà dib-bé-da-zu-dè
 3 'el-pa₅ du₆ du₈-d[a]
 e pa₅ du₆ du₈-ù-dè igi kàr-kàr-ab

5.2. Non-Nippur Texts

- 4 [G]ÁN⁷ a-dé-a-zu-[dè¹ []
a-šà a-dé-a-zu-dè a-bi šà-ba nu-íl
- 5 u₄ a-ta [x¹-[]
u₄ a-ta im-mu-e-a-e₁₁-dè-a
- 6 a-šà ki-duru₅-[bi¹ en-nu-un ak-ab []
a-šà ki-duru₅-bi en-nu-un ak-ab ki-še-er a-ra-ab-tuku
- 7 [gud¹ suhúb []
gud suhúb gír na-ra-ab-zukum-e
- 8 [x]-KIN-bi ù-bí-zé []
ú-sag₁₁-bi ù-bí-zé a-šà ki-gar ù-bí-dug₄
- 9 [x-à]m gín-sal 2/3 ma-n[a]
10-àm^{uruda} gín-sal 2/3 ma-na-ta sá-a-ab
- 10 []-BÍ⁷ um[bin⁷]
giš^{al}-sub-bé umbin gud ha-ra-šú-šú sa ha-ra-ab-lá-lá

The text of this small fragment shows no disagreements with the Nippur version.

5.3.3. VAT 17316 (VAS 24 70) = G3

- col. 1
G₃:1 [] dumu-ni n[a]
1 u₄-ul-uru₄^{ru} dumu-ni na mu-un-de₅-ga-àm
- G₃:2 [-d]a?-zu-[]
2 a-šà dib-bé-da-zu-dè
- G₃:3f. []-[x¹ igi bí-in-k[ár...] 4 [...]-[x¹ e-sal-la sahar ba?-[x-x]
D₃:3 e-pa₅-zu giš^{mar}-ru-um ki-sag-e-ba sa ha-ra-ab-lá
- G₃:5 [] hé-ri-íb-BAD
D₃:5 gál-tak₄-tak₄ a-šà-ga-zu gú? gá-gá-ak
- G₃:6 [] a-KA-da-zu a hé-en-gíd
D₃:6 gú íd-zu a-KA gán-šè a hé-gíd-gíd-dè
- G₃:7 []-lá a-[x]-ga-zu si?-dè
D₃:7 íl-la a-šà-ga-zu a-ba mar?-zu a-gàr a [x x]
- G₃:8 []-bi mu-un-da-íl
D₃:8 a-šà kur₆ a sed₄ in-dab₅ gán lugal-bi-i[r x x]
- D₃:9 a-šà a-dug₄-a-zu-dè [a¹-[]
4 a-šà a-dé-a-zu-dè a-bi šà-ba nu-íl

G₃:10 []-i-[x]-e₁₁
5 u₄ a-ta im-mu-e-a-e₁₁-dè-a

$G_3:11$ (traces)

col. ii *(useless traces of the first sign of lines 6-10)*

5.3.3. As shown by the parallels above, this fragment has the interpolation discussed in

5.3.4. BM 80583 (CT 58 77) = H_3

H3:1 kin u₄-da-zu u₄ tur-gin₇
81 kin u₄-da-zu u₄ tur-ra-gin₇

H3:1 ú-zu-uš [dī]-dī-lá! u₄ lu šè(TÚG) de₅-de₅-ga-zu-uš
82 usu dī₄-dī₄-lá-zu-ne ù lú še de₅-de₅-ga-zu-ne

H3:2 ši tu-ma?-ra-ab za-re-eš né-a
83 šid-bi du₆-ul-la-ab zar-re-ěš ná-a-ab?

H3:3 kin-zu mìn-zu ha-ra-ab-x-x
84 kin-zu mí-zi ha-ra-ab-dug₄

A syllabically written exercise, with no problems, except for the peculiar rendering of $\text{du}_6\text{-ul}$ in line 2/38; does one have to read du_5 , instead of ma ?

6. COMMENTARY

1. The opening phrase is ambiguous. First, it can be taken as starting with a time adverbial u_4 -ul-(la) "in the days of yore," followed by the grammatical agent uru_4 -e/ru "the one who plows." In favor of this first interpretation one could adduce the presence of u_4 -ul in the traditional opening of school dialogues: *dumu é-dub-ba* u_4 -ul-la-àm "an apprentice scribe, this was in the old days, ...". Against it is the absence of the suffix -a in the time adverbial. No decisive weight should be assigned to the absence of -a because opening lines may have archaic or peculiar expressions that do not conform to the general rules of grammar; note that the suffix is explicitly added by *Catalogue UET* 6 123:35. Secondly, an alternative interpretation considers that the two terms form together a personal name without losing their meaning: "Mr. Old-Time-Tiller." Anthroponyms with u_4 -ul-lu as the first element are rare, but not unknown; one can quote u_4 -ul-lu-KA.GAR ARN 46 r. 3 and, perhaps more significantly (if correct), the list of personal names *PBS* 11/1 41 iii 6 seems to have u_4 -ul-lu-EN[GAR].¹ There is a woman's name in Sippar written *ul-lum-er-še-et* TCL 1 69:35 and *ul-lu-mi-ir-ši-it* CT 2 3:3, 6.² The choice between these two interpretations is unclear. The person giving the advice can be the god Ninurta, called the divine tiller (uru_4) in the God List An = *Anum* I 237 (see comments to line 108 for further details) It can also be some ideal, unnamed "farmer" repeating traditional advice, which may have been attributed to Ninurta by the ancients. The term "son" here does not necessarily imply biological filiation; it means in all likelihood "apprentice" (like in *dumu é-dub-ba* "school boy"), someone not yet recognized as a full-fledged farmer because of age, insufficient training, or lack of administrative recognition. There may have been in Ur III times some sort of official promotion to the status of farmer, in view of the passage *mu engar-ra ba-an-ku_4-ra-šè* "(grain for PN₁ son of PN₂) because he has become a farmer" DAS 402.³

2. All preserved sources have *dib*, not *dab*₅. The two signs are always distinct in OB texts, and, in many cases, for some time afterwards (see Ea I 132ff. against 236ff.) Therefore, any interpretation of this line, based on *šabātu* with a legal meaning "to (contractually) take (a field) for cultivation" is unfounded. The correct translation is given by the equations (1) *a-šà-dib-dib-ba* = *šuppuru ša iki* Nabnitu IX 86f., "to trim (the vegetation growth on) the levees," a meaning clarified by the synonym *ég kal-kal-ga* "to reinforce the levees" (ibid. 87), attested in Ur III as *ég-a kalag-ak-a*, *TMH* NF 1-2 294:5, and (2) *[a-šà]-dib-ba* = *šá-ba-[lum]* Lanu F i 13, preceded by *[a-šà]-dib-ba* = *zabālu*, found in *Lugal* 222.⁴ Whatever the narrow meaning of this expression may be, it clearly refers to putting the fields (more concretely the levees of the

canals) in shape for drainage and irrigation, as shown by the following line. At this point, it is important to stress two main features of the hydraulic regime of southern Iraq. First, the alluvial plain south of Baghdad has a negligible slope (Baghdad, at 410 km from Basrah, is only about 33 m above sea level). This results in extremely unstable water courses very sensitive to the pressures of the yearly flood and to sedimentation. Secondly, the flood comes practically at the same time as the cereal harvest, in April-May. Not only the flood comes at an inopportune time for the plants growth, but also menaces the crops themselves. Flood control has always been the central concern of farmer and king alike in the history of southern Mesopotamia. Its history cannot be properly understood without knowing the hydraulic situation. Similarly these ancient agronomic instructions of FI need to be placed against a background of unruly water courses and a yearly flood whose time of arrival is predictable, but not its volume and intensity.

3. The word *ég/k* (or *e*) means exclusively "levee" or "embankment," not "canal." For this and related terms, see commentary 7.1. The term *du₆* "mound" refers to all kinds of elevations, including old ruins (tells) and abandoned canal embankments, that may impede the proper flow of water. In Ur III texts which describe the physical conditions of fields (e.g., *TUT* 12; *CHÉU* 100; *UET* 3 1372; A 1157 (8.2:8.1.1); BM 14165) *du₆* "mound" is common alongside *MUR₇* "ridge." Field names frequently have *du₆* as their first element; see *UNL* nos. 206-21a.⁵ *Gudea cyl.* A xi 13ff. reflects activities similar to the ones described in the present line: *pa₅-e gú-bi ma-ra-ab-zi-zi du₆-du₆ ki a nu-e₁₁-da a ma-ra-e₁₁-dè* "I will raise up for you the banks of the irrigation canals, for you, I will carry water up to the mounds where water cannot climb." For *du₈* in the sense of "to open a water course," see, for instance, the list *ITT* 3 6431 (PN *ídGN* in-*du₈*). For *igi-kár*, note, for instance *nag-ku₅ da umma^{ki}-ka a-na gál-la PN-e igi kár-kár-dam* "all the flood basins which are in the vicinity of Umma have to be inspected by PN" *YOS* 4 235; see also Steinkeller 1982:149ff.

4. The three most common verbs meaning "to irrigate" are (1) *a-gar/gá-gá*, (2) *a-dé*, and (3) *a-dug₄/e*.

(1) Regardless of system used, the first seems to be the more general term, and can also mean "to be submerged." However, in some cases it appears to be almost synonymous with *a-dug₄/e*.

(2) The second, *a-dé-a*, refers to flooding, primarily the yearly spring flood.⁶ This is clear from the expression *a-dé-a mu YN* "the flood of the year YN," which is used as a temporal expression ("flood season") to specify a particular time in dating a certain type of rental documents. It is obviously a once in a year event (*AnOr* 1 35, 36; *Or* 47-49 213; *AAS* 75; *MVN* 1 86; etc.).⁷ It is, in a sense, a time expression somewhat similar to *buru₁₄* "harvest season," "summer." The presence, in this line, of the suffix *-zu* and the mention in texts (e.g., *MVN* 13 307) of men working in/on/at the *a-dé-a* does not contradict the meaning "immersion by flood waters." It was not only an event brought in by the forces of nature with workmen as passive spectators; the work done to contain the flood, to lead the water to the proper places and in the proper amount, and to dispose of the excess waters, was one of the major activities in Mesopotamian life. It thus implies work done for a mixture of, at times, conflicting goals. At

times it was necessary to keep water away from a certain area, at other times, flooding a field was desirable.⁸ The term *a-dé-a* appears in a group of Girsu texts (ITT 2 2730; 3 4847; 5395; MVN 10 152) in which farmers assume certain obligations related to field irrigation. The formula is: PN *zi lugal a-ša a-dé-a-ni a-ba-da-lah_x(UD.UD)^{la} sukkal-mah-da nu-me-a a ba-ra-ab-gá-gá ù tukum-bi ba-da-lah-lah^{la}/-e ì-gaz-(da) bí-dug₄* "PN declared under oath that, after his flooded field dries up, he will not irrigate it without the *sukkalmah*'s permission, but if it (the field) dries up (for want of proper irrigation), he will be executed." The text on a superficial reading seems to include a Catch-22 clause, but it must be understood in the sense that the farmer assumes a double obligation: once the field dries up after the flood, he must keep irrigating it, as needed, to prevent damage by drought, but *only* with proper permission from the *sukkalmah*, i.e., the office of the "minister of the interior". The need for this permission seems to be the main point of the contract. Here, *a-gá-gá* is used instead of the more frequent *a-dug₄/e*, and the contrast with *a-dé-a* is clear.

(3) The third verb, *a-dug₄/e*, indicates the irrigation of the fields from canal water, later in the year, and is the term systematically used in FI (see below, line 68).

References to irrigation water lifted from a river or canal by means of a bucket hanging from a swinging pole are few. In the Lagaš area, plots qualified of a *zi-ri-gúm* are listed in rental field texts (mostly small plots managed by gardeners), and in surveys of fields with indication of soil quality (Maekawa 1986b:119ff., with discussion). The irrigation device itself is documented earlier: *giš-zi-ri-gúm* (after *giš-u₅-la*) in TMH 5 146; and in PS texts from Girsu (DP 471 ii 1; Nikolski 1 284 iii 3). In Ebla, *gišá-lá* = *šu-ri-gúm /ḏurīqqum/* (< *ḏrq* "to sprinkle") VE 097 represents, no doubt, the same word.⁹

The normal meaning of *a-íl* in Ur III texts is "to carry water," e.g., 1 *dug* 0.0.3 a *íl-íl-dè* "one jar of 30 *silà* to carry water" UDU 22 (in this case obviously not for irrigation). However, the context here requires an intransitive verb "to rise up (said of the water level)"¹⁰ Sumerian prefers in this case the verb *zi* (see, e.g., the letter in 8.4.2:8). It is not clear whether the antecedent, in the preceding line, of the pronoun *-ba* is the field or the ditches. In the first case, the water level in the field would be excessive, compromising the proper drainage on time for cultivation. In the second case, the water would rise too high in the ditches and canals, risking unwanted spillages into the fields.

6. For *ki-duru₅*, lit. "wet spots," see Steinkeller 1981:122³⁰, Yamamoto 1980: 172f., and Maekawa 1984:73. Note the syllabic spelling *ki-du-ru* in source D. It appears to designate the portions of a field with temporarily standing water resulting from the flood, not as a result of artificial irrigation. In other words, it designates the portions of the field on which the flood, after the water is gone, will leave a deposit of silt with favorable effects regarding productivity. Thus in economic texts, a more precise translation often is "irrigable land," regardless of the actual condition of the soil. Any connection with fallow in the previous year (Maekawa, loc. cit.) does not seem to be supported by the text. Nor do I see any connection with leaching, which always presupposes drainage, while *ki-dur₅* precisely implies lack of it. For the idiom *ki-še-er—tuku* "to reach the proper limit," see Civil 1966:123. One may wonder, however, if *ki-še-er* is not taken here in a more original, physical sense, such as "fence, enclosure." Note, in this connection, the text BM 17759 (CT 7 42) which describes the

construction of considerable lengths of mud walls (im-dug-a, *pitiqtu*) and reed fences (gi-dù, *kikkišu*), 4,080 m of the former, 13,680 m of the latter.¹¹ The term ki-še-er itself is not directly attested with a meaning "fence" in the lexical sources, but Hh XI 323 (now confirmed by *SpTU* 2 51 iii 21) gives gi ku-ši-ir = *qan ku-[...]*, in the section dealing with fences. This equation can very well go back to an OB form ki-še-er in view of the confusion between ki-še-er and ku-ši-ir "profit." The element še-er appears also in še-er-tab-ba "a type of reed fence" (Hh IX 325).¹²

7. The verbal form a-ra-ab-tuku, in line 6, is a simple indicative, not a prospective ù-form, and thus there is no syntactic connection between lines 6 and 7. The present line must be therefore understood as giving straight negative advice with no conditions or temporal limits attached. This interpretation contradicts the one proposed by the writer in *Civil* 1966:123¹⁶ and followed by Maekawa 1986a:88.¹³ Therefore, the question of whether oxen could have been fitted with "boots" or not, and, to a lesser extent, the question of whether the trampling by the oxen could have had some beneficial effects on the soil, are largely irrelevant in the translation proposed now. The conditions in rice paddies, where buffaloes and oxen are purportedly admitted (see *Civil* loc. cit., and Maekawa 1984:80f.), are quite different from the ones which obtain in flooded soils of Mesopotamia. Line 7 simply says that cattle herds (for this meaning, see discussion in 7.2) should not be allowed into a field with flooded or draining soil. Presumably, they had been previously allowed to wander and graze there.

8. The variant ú-ság-a-bi in A₄ suggests for ú-KIN the reading ú-sag₁₁/sig₁₈ (see 7.4.2). This term designates the bundles of reeds and other vegetation protecting from erosion the levees and banks of the water ditches; see a complete discussion in 7.4.2. The verb zé = *baqāmu* is one of several terms used in Ur III texts to designate the removal of plants and weeds, the others being ku₅(r), bù-(r), and sig₇-a. Note, e.g., ú íb-zé ù al ì-ba (for íb-ak) *TMH NF* 1-2 291:9; al-ak ù zé-a *StOr* 46 24 iii 39ff. Since zé is said also of cutting hair, the hoe is called "the great barber of the canals" (^{gi}al-e íd-da kindagal-àm) in *Song of the Hoe* 79. The verb ki-gar—dug₄ reappears in line 90. From the context, its best translation is "to prepare the grounds (to build or to do something)." For ki-gar "grounds, settled place, place where something is built," compare, for instance, ku₄-ra ba-ni-hun-gá ki-gar ma-ra-ab-du₇ "the one who comes in (the house) relaxes, I have made the grounds suitable for you" *Home of the Fish* 29; ki-gar-re bí-in-zu-uš "they recognized the place" *Lugalbanda* 1:491 etc.).

9. "Ten times," i.e., many times, also in line 39; cf. passages such as u₄-da 10-ta inim-inim-ma dil-dil-me nu-sar-en-dè-en "if we do not write many times every single one of our words (assigned as school exercises)" *Dialogue* 3:2; bahar u₄ 10-šè im-ma šu-è-è "many days the potter gets out the clay" *Silver and Copper* B 117.¹⁴ Compare the numbers 5 and 10 expressing indeterminate numbers in Sumerian, and the use of *ešrīšu* in Akkadian. The ^{uruda}gín-sal = *a/ehzu*, Hh VI 233, XI 377, Ai. IV ii 25, is a light metal hoe (the regular al-hoe had a wooden blade) whose weight is given here as 2/3 mana, ca. 323 gr. It may seem a very light tool, but here it is in fact heavier than the gín-sal listed in Ur III texts: 185.4 gr (*BRM* 3 144:1), 176.7 gr. (*BRM* 3 144:6), 158.5 gr (*UET* 3 20), or even 93.3 gr (*HUCA* 29 p. 88 no. 15:11). Physically, the tool must have been something like the tools with wrap-around shaft

6. Commentary

in *UE* 2 pl. 225, types S.8 to S.14. The recovered samples from the Ur royal cemetery, however, are much lighter: 66 gr (UM 30-12-395), 63.7 gr (UM 30-12-280), 47.4 gr (U 11482). They may have been miniature grave models.¹⁵ The *gín-sal*, despite being an old tool (*gín-sal*_{uruda} *TSS* 60 ii 4), is infrequent in Ur III, where the most commonly found metal hoe is the heavier copper *ha-bù-da*. A sample of 1864 *ha-bù-da*-tools¹⁶ gives a range of 122-429 gr with 73% of the tools falling in the 293-376 gr range. See also van Lerberghe 1982:279ff.

10. This line can be interpreted in various ways, depending on whether the sign after *umbin* is read *-bi* or *gud*, and on the interpretation of the verb *sa—lá*. The *gišal-šub* must have been a special type of hoe, probably with a slightly curved handle, shaped like the one of the *al*-hoe and with the blade along the axis of percussion rather than at a right angle, like in the simple *al*-hoe; see 7.2, for a discussion. The reading *umbin-gud* "oxen hooves"¹⁷ seems preferable to *umbin-bi* in the tablets in which the sign is clearly visible. It designates either the oxen tracks, i.e., the places with hardened soil trails made by the cattle coming and going in the fields, or some type of holes colloquially known as "oxen tracks." In this interpretation, the verb *šú* "to cover" fits better. If one reads *umbin-bi* (i.e., of the tool) one would have to assume that the *al-šub* had tines ("fingers"), contradicting the identification proposed for this tool in 7.2. There is no obvious meaning of the verb *šú* that fits the passage. The verb *sa—lá* would, in this hypothesis, mean "tied with strings." On the other hand, taking *sa—lá* in the well-known meaning "to sweep," one gets the meaning accepted in the translation: the field should be clean and smooth, after breaking the soil hardened by cattle tracks.

11. From the context in line 67, and for etymological reasons (*sal* "thin, narrow"), it appears that *ka-sal* means the narrower part, i.e., the bottom, of the furrow opening.¹⁸ The traces of the bottoms of the old furrows still existing after the harvest and field flooding should be erased, making the surface perfectly flat. The tool *ú-tag*, used for this purpose, is very poorly documented: *ú-tag* = *ingu* Izi E 271, confirmed by *ta-ag* TAG = *ša Ú.TAG ingu* Aa V/1:232. A part of the *túg-sig*₁₈-plow, attested only in the canonical version of Hh V 169ff., bears the same name *giš_u-tag-ga* (var. *u₅-tah*) = *ingu*, with synonyms *giš_u* and *giš_u*u₅-šU.KIN*, see remarks to lines 30-31. The verb *tag* seems to imply that it was used as a percussion tool. It may have been a kind of wooden maul, although, if it had any similarity to a plow, more plausibly, a tool capable of work similar to hoeing or plowing.¹⁹

12. This line was seemingly understood by later scribes as prescribing the erection of a reed fence all around the field: *gišal-a-šà-ga ba-ab-nigin-e* = *kadāra ilammi* "he will surround (the field) with a reed fence" Ai. IV ii 29. The present line would thus make good sense translated "let a fence surround the four sides of your field." For this practice, see comments to line 7. Although *gišal(a-šà-ga)* = *kadāru* is a hapax (the expected Sumerian terms would be *gi-dù* or *giš-nig-si(ga)-a-šà-ga* Hh IX 310), it may be only an apparent one: it is likely that the sign *AL* goes back to a misinterpretation of the group *NIG.SI* of the entry from Hh IX. Such sign confusions are not without parallel in *Ana ittišu*. (see remark on Ai.iv i 50 in the comments to line 66). It seems thus preferable to translate: "the hoe should go around the four edges of the field," in the sense of working the entire surface, or perhaps paying special attention to

working the edges of the field (for drainage?). The Mesopotamian wooden hoe (^{giš}al), mentioned also in line 40, was a tool quite similar to the ancient Egyptian hoe (see discussion in Civil, forthcoming).

13. With the literary use of ^{šeg}₆ = *bašālu* "to cook," speaking of drying a field, compare *terram ... memento excoquere* Vergil, *Geo.* 2, 259f. and 1, 66. For the construction with *en-na* and *-ta*, cf. *ninda ní-bi-a en-na šeg₆-gá-ta* "until the cakes have been baked" *Lugalbanda* 1:290. The administrative documents use *lah* "to dry" when describing drainage work, e.g., *erín engar a-sà lah-dè DU-a-me* "they are farming teams going to dry out the fields" *ASJ* 8 (1986) 105 iii 9; *n iku lah-dè DU-a maš nu-tuku A 5832* (8.2: 8.3.2); *lú a-ša lah-dè DU-a-me RTC* 419:2, 12; and the passages quoted in the remarks to line 4.

14. The term ^{giš}šu-kár, Akk. *unūtu*, designates "tools, implements" in general, see also comments to lines 15 and 19.

15. The meaning of ^á-šita₄ (with an alternative form ^á-šu-du₇) is very similar to that of ^{giš}šu-kár, see Civil 1968:7. In a group of administrative texts from PS Girsu, the parts of the plow are globally called ^{giš}šu-kár *apin-na* (e.g., *DP* 493 xi 1) and note 1 ^{giš}šu-kár *šu-du₇-a gud apin* "one set of yoke parts for the plow's oxen" *MAD* 4 41:9 (Sargonic). The same Girsu texts (*DP* 492-94; 498-99; 502; *TŠA* 31) provide, among the plow supplies, a list of the parts of the yoke. A very detailed description of the assembly of the components of the yoke can be found in a text from the first half of the XXth century B.C. which describes king Lipit-eštar inaugurating the agricultural season by drawing furrows in a field, after having personally assembled the plow.

16f. FI mentions only the whip, while the Girsu texts, cited in the remarks to the preceding line, always include the copper-tipped goading stick (*bar-uš^{uruda}*), but rarely mention the whip (e.g., *DP* 492 viii 10) among the plow supplies.²⁰ An important caveat is in order here. Sticks with metal tips have often been used to periodically clean the share during work; it is possible that the *bar-uš* was used for this purpose instead of, or at the same time, that for goading oxen. If it has to be considered primarily a goad for oxen, the change between PS times and Ur III may reflect different preferences in an age-old disagreement between farmers over the advantages of one tool over the other. Columella, for instance, favors explicitly the whip (*flagellum*) over the goad (*stimulum*). The latter, he says, makes the oxen "irritable and prone to kick" *RR* 2, 26. The whip was made from sheep hides: two of them, for a total weight of half *mana*, were needed for each whip (*JCS* 24 167 83); one fourth of a *mana* of goat hair was used in another instance (*AOS* 32 E 19:5f.). The thong was called *eme* "tongue" (*STTI* 36:8; *ITT* 1 1275, p. 17) and was secured to the handle (*mud*) with strings (*sa STTI* 36:7; *ITT* 1 1275, p. 17; 5 9272 r. i 4') and a ring (^{giš}har *DP* 490 ii 4).²¹ Note *sa-lá*, said of a whip in *TCL* 2 5565: 2 ^{giš} ^{kuš}usàn *sa-lá-a PN lú ur-kiš^{ki} u₄ ur-kiš^{ki}-ta ì-im-gin-na-a in-ba* "two whips tied (to handles) were presented to PN, the representative from U., the day he arrived from U."

6. Commentary

18. The Nippur text (two sources only) gives *dumu gašam-ta*, with the suffix *-ta* in an unusual function; it seems, however, to be a traditional phrase, compare *nam-lú-lu₇ gašam-ta ma-da-ab-tuš-a* "the people who live at the artisans" *Edubba* B 107. The apparently more grammatically correct form is found only in *B₄*, while *A₂* and *A₃* give the plural suffix, without the mark of the agentive. The verb *dùg*—*ak* represents a causative construction, comparable to *tubbu* in Akkadian, and replaces the simple *dùg* used transitively.²²

19. These are the three typical tools of the carpenter. They appear as a group already in ED times in a collection of short hymns to deities: *nun ildù nagar, še-gín lù, gín ŠIM(?)*, *sum kù-babbar, bulug za-gìn, ^dnin-ildù za-me* "the noble Ildu, the carpenter, stirring the glue, (carrying) the ... chisel, the silver saw, the lapis lazuli drill, praise be to Nin-ildu! (the protective deity of carpenters)" *OIP* 99 p. 49:92-97. A lexical list of the same period gives: *gín, šum, bulug*, all with determinative *uruda*, ED PVA 155ff. The motif appears still in late texts: *STT* 199:34ff.; 200:62ff.; ND 5474:5ff. (unpubl., see *MSL* 9 207f).

20. These are various types of leather straps and leather wrappings used in agricultural implements, particularly in the plow. The translation *sūtu* for *kušsag-kéš* in bilingual *A₄* is a hapax, but the Sumerian term is listed in the Forerunner to Hh XI (*MSL* 7 220:119) before *kušbar-e₁₁-dè*, in a section about thongs and straps. The first term designates probably braided thongs, the second, translated by *tēnū* (another hapax), a flat strap working by tension. In *Hoe and Plow* 103ff., after the plow has broken down, the artisans (concretely the *túg-du₈* "felt and strap maker"):

níg-bar-sur-ra ma-ra-ra-e₁₁-ne
gišbar-e₁₁-da-e₁₁-da šu mu-ra-an-kúš-ù-ne
kuš nu-dùg sag-du-zu bí-ib-gar
 they raise the twisting picket,
 exhaust themselves (working) with the braiding lever,
 a worthless piece of hide is put on your head (= sole?).

For details, see the discussion on rope making in Civil 1965:75ff. In the text *Lipit-eštar and the Plow* 35ff. (see remarks to line 15) the usage of the *kušsag-kéš* is clearly described (no variants given):

kušsag-kéš-bi giškak za-ra gú-gil ba-ni-in-ak
gišda-an-ga giššudul-šè ba-ši-in-lá-lá dur-áb-sag mi-ni-in-dug₄
éš gišsag-kéš dur-áb-sag-gá-ka giškak ma-ra mi-ni-in-nigín
 This thong is twisted around the peg of the beam,
 the crosspiece is well fastened to the yoke, it forms there
 the attachment for the oxen heads.
 The rope (and) the thongs of the attachment are tied around the ... -peg.

The *kušsag-kéš* was thus an important element in the yoke assembly. The *kuška-dù* = *erimtu, šintu, šintētu* Hh XI 149ff. (completed by N 952+) is a leather cover or wrapping, perhaps around the bottom of the sole.²³ Hides and leather pieces for the plow are often mentioned in administrative texts.²⁴ Sheep hides were used more than half of the time, the rest being ox

and donkey hides. They are said to be simply "for the plow" or "for the oxen of the plow," without being more specific about particular parts of the implement. A couple of times the texts use the term HI—lá: 2 kuš anše ^{giš}apin ù ^{giš}gán-ùr-ra HI-šè ba-lá Or 47-49 268; 2 kuš anše ^{giš}apin-na HI-lá-dè A 5923 (8.2:1.1.3); it probably means "to tie" or "to reinforce."²⁵ Once the hides are said to be gud apin-e šu-du₇-du₇ "to hold the oxen to the plow" A 26328 (8.2:1.1.2). The verb sag—ha-za, as shown by the context here and in line 34, means "to attach securely" (*kullu*).

21. The PS Girsu plow texts mentioned in the remarks to line 15, regularly include one basket, written ba-an-du₅,²⁶ among the plow accessories. This basket's function is revealed by the Akkadian translation *mazrû*, from *zarû* "to sow," provided by the first time by source B₃ 21. It was thus the basket used to carry the seed for the plow funnel, and also to measure the seed beforehand. When readying the plow and its accessories, in *Lipit-eštar and the Plow*, the god Ennugi helps the divine plowman Ninurta by making the sowing basket: ^den-nu-gi₄ ^{gi}ba-an-du₈ mu-ni-in-dù (line 60). The materials needed to manufacture such a basket are listed in *TCL* 5 6036 xv 13ff. One such basket, impregnated with bitumen, requires, in addition to the usual reeds and palm leaves, four wooden pieces two cubits (ca. 1 m) long. It is not known if these pieces were cut into smaller sections, or whether they were straight or curved, and thus nothing can be said about the size of the basket. The verb KA—ak (perhaps káb!—ak) of the Nippur sources has to be taken in the sense of "to gauge," "to verify the capacity" (káb—dug₄/di = *latāku*, for which see 7.5.), as shown by the variants káb-di—ak of A₂ and A₃, and káb-me—ak of D₃, as well as by the Akkadian translation *la-ti-i[k]* in B₃.

22. The term á-áš = *hišihitu*, designates the supplies needed for all kinds of work and can naturally be applied to farming tools and implements; for the Akkadian, see, e.g., the OB letter VAS 16 129:17.

23. See, for instance, *MVN* 11 60 where gud numun diri "reserve oxen of the seeding (plow)" contrast with gud numun GÁN "of/on the field." In one case the reserve oxen are as many as the working oxen, in another only one half.

24. Cf. Columella *RR* II 22: *in opere boves arte iunctos habere convenit* "at work, one must have the oxen skillfully yoked."²⁷ Here it is, in all likelihood, a reference to the training of the oxen; a calf is yoked next to a well-trained ox, and the way the animals are attached one to another is particularly critical.

25. In real life, the plow broke down quite frequently. A graphic description of such accidents is found in *Hoe and Plow* 95-99:²⁸

sag-zu kin-gá ù-mu-e-ni-ri
^{giš}i-ri₉-na ^{giš}Ú.GÍR um-mi-in-lá
^{giš}zú-zu mu-e-ku₅ ^{giš}zú-zu ù-mu-e-dù
^{giš}zú-zu šu-zu-šè nu-*um-mi-lá
engar-zu ^{giš}apin-bi til-la mu-šè mi-ri-íb-sa₄-sa₄

6. Commentary

After you put your head to work
and get entangled with roots and thorny plants,
your tooth breaks, when your tooth is made anew,
you cannot keep your tooth (for long),
your farmer calls you "this plow is done for!"

The plow's share is normally called *eme* "tongue" in the literature, the use here of *zú* "tooth" must have had some despective connotation that escapes the modern reader. In *Lahar and Ašnan* 113f., the plow's share is again mentioned among the agricultural implements that constantly fall into disrepair.

26-28. In these lines there remain many textual uncertainties and problems of interpretation. In line 26, the Nippur sources seem to have the sign for one *bur* instead of the one for 10 *bur*, which is clear in A_2 and D_3 , and probable in A_3 . In Sargonic texts the *éš-gàr* "assigned task" of one plow is given as 90 *iku* in *BIN* 8 203, and 108 *iku* in *BIN* 8 144.²⁹ If the reading 10 *bur* is preferred in FI, the number of *iku* (180) is more in consonance with the Sargonic data and logically fits better with line 27 (the customary assignment for a plow is 180 *iku*, but you make it work only 144 *iku*). An OB contract from the 5th month of the 12th year of Warad-Sin, YOS 5 164, confirms the 180 *iku* value.³⁰ If one reads 18 *iku* in line 26, the relation of this number to the 144 of line 27 makes no obvious sense. It is not clear, however, what is meant by "assigned task of one plow." Since a *túg-sig₁₈*-plow works only 3/4 *iku* a day, and a seeding plow 2 *iku*, it cannot possibly be one season's work. It cannot be an agrarian measure either, because it is variable in the *BIN* 8 texts, and according to FI it could be changed by the farmer. One could assume that the area refers to the useful life of one plow. It would make very good sense in the present context (one plow is expected to last 180 *iku*, but you will rebuild it or make a new one after 144 *iku*). In this case, one would have to assume that the areas given in the *BIN* 8 texts do not represent the effective area of the field but the effective area multiplied by the number of times the plow tills the field. The maximum would be three times for the breaking plow and twice for the seeding plow (see line 55f.), and thus the real field areas would be at least 36 *iku* in FI, 18 in *BIN* 8 203, and 25 3/5 in *BIN* 8 144. The matter requires further study. In *TMH* NF 1-2 303 the *gud numun* "oxen of sowing," and the *gud giš-ùr* "oxen for the harrow" are added up as *gud éš-gàr* "working oxen," contrasting with *gud è* "oxen taken out (of work)."³¹ In line 27, *za-e* is preserved only in two sources (AC). The number of *iku* is preserved only in A_2 , but A preserves the upper row of four Winkelhaken, and A_3 the lower row and the end of the upper one, which ends aligned with the lower, so that 8 *bur* = 144 *iku* can be considered certain. The word *giš*, "the (wooden) implement," is here assumed to stand for *apin* (cf. *gišgiš* = *epinnu* Hh V 105).³² The verb used here is *dù* "to make, to build," and an interpretation dealing with the plow's construction seems preferable. Line 28 is not found in the Nippur recension and its text is somewhat uncertain.

29. All sources agree in having 1 (*bùr*) at the beginning of the line. The signs before *gur* are clearly three vertical wedges. Salonen 1968, and Maekawa 1981 read 3 *gur*, an interpretation in all likelihood incorrect, because in this case, one would expect the wedges to

be horizontal. Even the literary texts (e.g., CT 42 15 ii 4) write the units before *gur* with the customary horizontal wedge. Jacobsen 1982:58 understood it as 180 *sila* of wages and costs. However, this interpretation is not graphically free of objections either. The normal way of writing 0.3 *gur* is with one regular vertical wedge and a broken one. There seem to be no cases of writing these fractions of *gur* in non-administrative texts. One could thus perhaps read 0.3 *gur* (= 180 *sila*), and certainly 180 *gur*, but not 3 *gur*. A value of 180 *gur* is clearly excessive for yield, and completely unthinkable for costs. Furthermore, a statement about yield would be here out of context. An amount of 180 *sila* for seed is too low, and its mention is not expected here since the seed amount is treated in lines 50f. If 180 refers to costs, the value is more acceptable. The oxen feed per *bur*, when sowing at eight furrows per *ninda*, is 200 or 240 *sila* (see comments to line 46). Such amounts are valid for the seeding plow but probably not for the breaking plow. The sowing of one *bur* in Ur III takes 9 days (2 *iku* per day; see comments to lines 55ff.),³³ while the first plowing takes at least 18 days per *bur* (at 100 *sar*/day, the highest value attested). The costs should be proportionally twice as high. This is confirmed by a PS Girsu text (VAS 14 184) where the cost (in oxen feed) of the preliminary plowing is twice the cost of sowing: 24 *sila/iku* (432 *sila/bur*) for the first, 12 *sila/iku* (216 *sila/bur*) for the second. The costs in barley of the first plowing are not given in Ur III texts; cf. BM 16369 (CT 3 10): 220 še *gur* še túg-sig₁g gar-ra, but with no indication of the number of plows or the area plowed. In conclusion, I am inclined to see in this amount of grain, something related to the costs of the plow (or plowing), what exactly I cannot say. The phrase še—gar normally means "to sow grain" (as in line 51), but other meanings are acceptable given the semantic generality of gar. As a matter of fact, the phrase is used in BM 13369 (above) for the costs of the breaking plow.

30-31. The plow³⁴ is used in two different kinds of operations: (1) the loosening of the soil in summer and early fall, and (2) the opening of the furrows and seeding in late fall. These lines give advice on the first; for the second, see lines 41ff. "The soil during a season of crop gets compacted by winter rains or irrigation, and by the trampling of people harvesting or animals foraging. It needs to be loosened to facilitate seed coverage, seedling root development, aeration, penetration of water, etc. etc." (Russel 1957:3). It has been sometimes described as "deep-soil plowing", e.g., Landsberger 1937:160, or "Tiefpflug", Salonen 1968:60. A better term is "breaking plow," or "Umbruchpflug," e.g., Hruška 1985:46ff.; one cannot speak of deep plowing when dealing with light, symmetrical plows (ards). The same basic wooden plow is used for both operations. A different type of share and the addition of ridging boards and a seeding funnel converted the basic armature into a seeding plow (see comments to lines 43ff.). Á.KAL "strength" here refers to the extension assigned to one plow rather than to an agent ("a strong arm"), compare *emūqu* in the passages quoted CAD E 161a s.v. 4 c. The first, soil-loosening plowing is done three times, according to the advice given here. In Ur III texts, from one to three times. The name of the implement changes in the different runs, apparently implying some modification in the plow, possibly the share, or in the way of plowing (a second plowing was most likely done at right angles to the first). The terms are: (1) ^{giš}bar-dil, (2) ^{giš}(apin)-túg-sig₁g, and (3) ^{giš}túg-gur₈. The first one (*majāru*) is found only in lexical texts,

6. Commentary

Hh V 107 and parallels, and in the present context.³⁵ The second is translated in Hh V 123f. by *harbu* and also by *majāru*. It is the main term, the one that is found when only one is used (e.g., túg-sig₁₈ a-rá 2, YOS 4 288), the one that survives, with slight modifications, in the lexical tradition, and the one found in the literature: in-nin ^{giš}túg-sig₁₁ KI.KAL gál-tak₄-tak₄ "the Lady, a breaking plow that opens the hard ground" in an Inanna hymn (Sjöberg 1975: 182:56, modified). See 7.5. for a more detailed discussion of this plow. The third term is attested only in Ur III agricultural accounts, and in the present context, line 31, written túg-gur, with a variant tukur (written LAGABxU) in A₃.³⁶

The Ur III agricultural accounts include a relatively large number of texts that provide quantitative information on plowing and harrowing. In calculating the wages, these texts combine both operations, according to the pattern: *a* iku túg-sig₁₁ (túg-gur₈) *b* iku-ta giš-ùr-ra a-rá *c* *d* iku-ta á erín-bi *e* "a iku to be worked by the túg-sig₁₁-plow (or by the túg-gur₈-plow) at *b* iku (per diem and) to harrow *c* times at *d* iku, the wages of the workers are *e*." In this formula, *a* is naturally quite variable, ranging from 2 to 216 iku, but with a marked preference for low values: 74.1% of a sample of 140 plots are 36 iku or less, and 48.2% are 18 iku or less. The values of *a* show a preference for multiples of 3 and there are marked peaks at 18 and 36 iku. The variable *b* is 75 sar in 69.4%, 80 sar in 4.2%, and 100 sar in 26.4% of the cases. There are isolated cases of *b* < 75, notably in the text Fara 973 (JAOS 52 113). The value of *e* is calculated according to the formula: $e = 3(a/b+ac/d)$. As already remarked by de Genouillac 1924:44f., three workmen are needed to perform these operations.

32. These are the traditional OB terms for harrowing the field; see Ai. IV i 36ff. (cf. 54f.); Kagal A 269ff.;³⁷ *Letter of Lugal-nisag* 9 (Civil, in press); YOS 2 151:17. Note that the operation receives a different name each time. The names for the second and third harrowing mean simply "do for the second/third time." The Ur III texts use instead the formula giš-ùr-ra a-rá *n*-kam, see commentary to lines 30f.³⁸ The harrowing is performed from one to five times, depending on the condition of the soil, and the area harrowed in one day is between 4.5 and 6 iku (from 16,200 to 21,600 m²).³⁹ According to a sample of 150 operations:⁴⁰

Table 6.1. Harrowing operations

Number of harrowings (y)	frequency
1	11
2	47
3	86
4	4
5	1
Area harrowed per day (z)	frequency
4.5	48
5	45
6	34

The name of the harrow is ^{giš}gán-ùr = *maškakatu*, Hh V 173-87 (with names of its parts). The term is already attested in ED (MEE 3 147 xii 7', next to ^{giš}apin) and well documented in PS Girsu (DP 446 iii 1; 450 vii 4; 452 vi 5; 458 ii 2; 461 ii 1; VAS 14 157 iii 4; etc.). Although found in Ur III texts (e.g., Or 47-49 268; CSTR 588; TCS 1 121:10), the preferred designation at that time was giš-ùr "beam".⁴¹ The implement consisted of a beam with "teeth" (zú), often

mentioned in PS texts (DP 437 x 5; MVN 3 17 ii 2; and most of PS references above). For Ur III, see CSTR 588 and, especially, the farming contract NATN 837: tukum-bi še-numun mur-gud ... ù eme ^{giš}rapin¹ zú ^{giš}gán-ùr-«ta» šu nu-ni-dù a-šà-bi in-tak₄ "if he does not provide seed, oxen feed, ... and plow shares and harrow teeth, he will forfeit the field." The width of the beam is given in DP 437 i 2 as 5 kuš (ca. 2.5 m). Since it was pulled by oxen (at times harrowing is considered part of the plowing operations in the administrative documents) it is likely that the beam of the harrow was connected for its operation to a plow's yoke.⁴² Ai. IV ii 26 mentions a harrow for a garden. The harrow appears several times in the literary texts: ^{giš}gán-ùr ^{giš}ga-ríg a-šà-gá ^{giš}zú gal-gal ha-ra-ab-si gán kù de₅-de₅-dè "the harrow, the comb of my field, has to be fitted with large teeth to 'scratch' the holy field" AOAT 25 89:120 (completed by ZA 70:55ff.); ^{giš}gán-ùr-mu [...] du₆-du₆ gul-e "my harrow flattens the bumps" *Silver and Copper* B 68f.; cf. *Lahar and Ašnan* 113f. It is used figuratively as a symbol of destruction in ^{giš}gán-ùr é ki-bal-a sì-ke "(Inanna is) a harrow that flattens the house in rebellion" *Inanna and Ebih* 76; mir-mu ^{giš}gán-ùr zú gal-gal-la kur ì-si-il-si-il-e "my anger is a harrow with very large teeth which breaks open the foreign countries" *ibid.* 171; u₄ ^{giš}gán-ùr an-ta è-dè "the storm (was like) a harrow coming out from the sky" *Lament over Sumer and Ur* 80b; ^dmu-ul-líl-le mu-gán-ùr⁴³ [i]m-da-e-u₅ ka-nag-gá [i]n-da-e-si-[ke] : ^dMIN maškakātu [t]ušarkibma māta taspun "Enlil, you rode the harrow, you levelled the country" KAR 375 r. ii 46f. (completed by 5R 52 n. 2:41); ^{giš}gán-ùr-mah ISET 1 13 ii 5f., collated. In *Uruk Lament* 3.5 (JAOS 104:269) the hair of a monster is compared to harrows.

33f. The word ki-šúr is poorly attested, but one can quote a couple of passages: ^{giš}si-gar-bi muš-šà-tùr ki-šúr-ra (var. ki-š]u-ur-ra) ní-bi ùr-ùr-ru-dam "its bolt is a šatur-snake entering⁴⁴ a hole" *Nungal Hymn* 24; the door bolt sliding into the striker hole is compared to a snake entering a cavity. Similarly, é-huš ki huš-mu muš-huš-gin₇ ki-šúr-ra bí-dù "like a snake-dragon, I had my terrifying place, the 'House-of-Terror,' built in a hole" *Gudea cyl. A* x 19f.⁴⁵ A confirmation for the meaning "hole" is [ki]-šúr = qubūru "grave" Nabnitu XXIII 207. Therefore a meaning "clod," more natural in the present context, may have to be rejected in favor of "hole, cavity in the ground" i.e., the depressions still left in the field after harrowing. Nevertheless, a metaphoric meaning like "the most stubborn places," (the places less amendable to be properly leveled) is likewise possible, and required by the context. The verb (^{giš})kak-UD—ak is explained in BRM 4 33 ii 3-4 (a commentary, probably copied from an OB original): ^{giš}kak-UD¹—ak = muh-hu-šu, ^{giš}kak-UD¹-an-na—ak-ab = pa-a-šu (or -ak = {ap} pa-a-šu?), "to hit," "to smash." A₄ and B₄ have kak-da-ga-šè implying, if correct, UD = dág in the other sources. The tool ní-gul, used in this operation, is made of copper, with an average weight of 4.5 mana, in a group of Sargonic texts from Umma (references in Foster 1982a:35). In Ur III texts, the tool alone is not found, it must be presumed that it was made of wood, but an agricultural activity described as ní-gul—ak is often mentioned. It must refer to breaking the clods left after harrowing. The surface worked per day, computed from a sample of 22 such operations, is 10 sar (360 m²) in 10 cases, 12 sar (432 m²) in 6, 15 sar (540 m²) in 5, and 20 sar (720 m²) in one. In Rome, a iugerum (ca. 2523 m²) was worked in a similar fashion in three days, i.e., 841 m² per day (Billiard 1928:70). The ní-gul = akkullu, is thus a "maul." For a modern representation of a similar tool, see Wulf 1966:266 fig. 361. Line 34 continues the subject, by

6. Commentary

insisting on the very understandable need to have the maul's head solidly attached to its handle. For the technical meaning of sag—ha-za, see comments to line 20.

35-37. Exhortation to work formulated in general terms. In line 35, ugu—dé/DU must reflect an Akkadian idiom, possibly *ana muhhi abālu*, or the like, with a meaning "(the work) is brought up," i.e., comes up. Taking ugu = *eli*, the line could be translated "when your work has become excessive."⁴⁶ The verb kin—ak, which in itself means simply "to do work," is the general term for agricultural work and is found in administrative texts of all periods, starting in ED (e.g., *WVDOG* 45 xii 3).⁴⁷ Literary examples are a-sà en-te-en-e kin nu-ak-a "the fields which are not worked during winter" *Winter and Summer* 277; a-gàr gal-gal gán-zi šu-nim-ta kin nu-mu-ra-ab-ak-en "I do not work for you, early in the season, in the great fields and plantations" *ibid.* 180; gaba a-šà-ga-sè á hé-mu-e-da-ág erín-e kin hé-bí-ak "facing the fields, you are (now, as a scribe) capable of giving orders so that the working teams can work there" *Dialogue* 4:45. In line 37, if the variant with -en is accepted, the translation would then be "you should not need to say to anyone."

38. The topic of the stars indicating the right time to start the sowing season is a recurrent theme in the Georgica tradition; see, for instance, Vergil, *Geo.* 204ff. Allusions to this role of the stars are infrequent and vague in Mesopotamian texts: [...]ke₄ an mul gur₅-a-gin₇ [š]u mi-ni-íb-du₇ ga-na kin á-zu-a bí-ak "[...] when the turning starry sky is right for him, come on, you will perform the work of your arms." *Silver and Copper* C:13f. The constellations are called *idāt erēši* "the signs of sowing (time)," in the Gula hymn *Or* 36 118:37. A reference from practical life is the OB letter *TLB* 4 65 in which the addressee is told not to irrigate sesame before the rising of Sirius (around the beginning of July).⁴⁸ In the present line, no particular constellation seems to be meant, although mul could designate the Pleiades.

39. The translation takes igi—gíd as *nekelmû* "to look with disfavor, with anger."

40. The wooden hoe has been briefly described in the comments to line 12. The al or al—ak work "hoeing" is very frequent in Ur III agricultural accounts. In most cases it is not clear whether it precedes or follows sowing. The area worked daily ranges from 1.5 to 10 sar (54 to 360 m²):

Table 6.2. *al-ak*-work

Area worked (<i>al-ak</i>) in 1 day (in sar)	frequency
1.5	1
2	2
3	19
4	22
5	33
6	32
7-7.5	6
8	7
9	0
10	6

Since 1 *ninda* corresponds to ca. 600 cm, the spacing for 8, 10, and 12 furrows per *ninda* is 75, 60, and 50 cm., respectively. All sources known to the writer have been used for Nippur (BE 3 92; NATN 373; 798; N 623), and Umma (A 162 [8.2: 4.1]; MVN 1 86; AnOr 7 339; CSTR 537; CHÉU 90; JSOR 12 27; BIN 5 276; SAKF 95). For Girsu/Lagaš a large sample ($n = 193$) of plots has been used, interpreting the data as seed + oxen feed in a 2:1 ratio (Powell 1985:37ff.)⁵⁸. A spacing of 10 furrows per *ninda* is thus the most frequent in Ur III, with a substantial number of cases of narrower furrows. A spacing of 8 furrows is, however, very rare; especially considering that such spacing in Lagaš occurs when the ^{gi}*gaba-tab* is used in sowing. This implement was a drag-plow pulled by men and thus the furrow spacing may have been dictated by technical labor considerations. The relationship between number of furrows per *ninda*, area measures, amounts of seed and oxen feed, and labor costs are fully discussed in Powell 1984b:46ff., with previous literature. In abbreviated form, if f = furrows/*ninda*, in Umma and Nippur:

f = seed per *sar* (in *gin* = 1/60 *sila*)

$30f$ = seed (in *sila*) per *bur*

f = length (in *ninda*) of the furrows per *sar*

$1800f$ = length (in *ninda*) of the furrows per *bur*

and consequently:

f = length (in *dana* = 1800 *ninda*) of the furrows per *bur*.

The Girsu texts operate with an amount of grain of $45f$ (in *sila*) per *bur*, which represents the $30f$ of seed, as in Nippur and Umma, plus $15f$ which is 50% of the assigned oxen feed. No such detailed data are available for OB times. A Nippur text from the 21st year of Samsuiluna, PBS 8/2 134, gives the width of fields in furrows instead of length measures (implying a standard furrow spacing), but the seeding rate is very close to the traditional 1 *gin* per *ninda*.⁵⁹

47. The alternative writings BU-BU-na (FQ) : KU-KU-ru-na (OA₂C₃) : BU-BU-ru-na (A₃) make it difficult to establish the precise form of the root. The variants can provisionally be harmonized by reading bu₇-bu₇-r/bu-bu-r. A MB bilingual passage provides the meaning; ab-^{si}*śin-gin*₇ ḫ-KU-KU-re-eš-ām mul an zag-til-bi : *kīma šer'i sun-nuqu kakkab šamê gimiršunu* "all the sky constellations are like closely aligned furrows" ArOr 37 484:57; cf. Lambert 1971:93f.⁶⁰ The sense of the line seems to be that a furrow spacing closer than 8 furrows/*ninda* (0.75 cm), the wider attested in the agricultural documents, will have an unwanted effect on the crops. It will cause the plants to run the risk of something described by the verb *gú*—*gíd*. This verb, unfortunately, is extremely polysemous and while some of its meanings are clearly inapplicable here—e.g., "to rob" (*mašā'u*, *šullulu*), or "to be angry" (*šabāsu*)—the ones that can be applied to barley plants are as diverse as "to prosper" (*hanābu*) and "to lean, to bend downwards" (*šurru*). Of these meanings, the first is not applicable. If narrower spacing favored the plant growth, there is no reason why the farmer could not adopt it; in fact, the most frequent spacing in Ur III was narrower, 10 furrows/*ninda*, than the one recommended in FI (see line 46). This leaves the second, "to bend,"⁶¹ which can refer very well to *lodging*, i.e., when the barley culms are bent over or flattened to the ground, either because

6. Commentary

of inherent weakness of the stem, excessive grain weight, and/or wind, rain, or hail (Briggs 1978:33ff). Sufficient spacing of the plant rows was thus intended to circumscribe the lodging damage by preventing the "domino effect." A passage from *Winter and Summer* reads: še eštub gú hé-ni-in-gíd dub-ba-an ba-ra-ni-in-tuku "if the spring barley 'bends the neck' in the hollow of the furrows, no one provides it with fences" (line 181)⁶² If correctly understood, the passage reveals that reed fences were occasionally used to circumscribe lodging.

50. This line implies the use of a drill plow, i.e., a plow that drops the seed at the same time that it opens the furrow. See remarks to lines 43-45. The seeder consisted, according to Hh V 146ff., of a funnel or bowl (dilim) with a hole (bûr) at the bottom feeding a tube (nindá or indá) which crossed the sole behind the share.⁶³ Peg(s) (kak) attached the implement to the body of the plow. For additional parts, see comments to line 43. The idea that a sort of peg, fitted in the funnel hole, provided some control of the flow of grain is an attractive one, but there is no evidence whatsoever on how the flow was regulated. It must have been solely by manual control of the workman dropping the seed into the funnel. The grain should be dropped 2 šu-si-ta "at/every two fingers." Landsberger 1937:154, interpreted it as meaning "zu je zwei Finger (tief)." Powell 1972:182 doubts this explanation. According to him, it can only mean the spacing of the seeds. While this is on the surface an attractive interpretation, it encounters serious practical difficulties. The average area plowed and seeded in one day by one plow is 2 iku, or slightly less (see comments to lines 55ff. for details). From the formulas given above (comments to line 46), it results that with 2 iku and a spacing of 8 furrows/ninda, the length to be plowed in one day is 9,600 m. Assuming a daily maximum of 10 hours of effective work, this results in a speed of 26 cm/sec. Since in these 26 cm there are 8.3 intervals of 2 fingers, it results that the plowman has to perform 8.3 times a second the operation of dropping the seed into the funnel. This is the lowest frequency possible. Any change in the variables requires a much higher number of operations per second. It is unlikely, for instance, that the working plow was in action for full 10 hours a day. Counting the time spent turning around at the end of the furrows, periods of rest, accidents, and sundry adjustments, 6 or 7 hours of effective work seem much more realistic. To finish 2 iku of field in 6 hours the plow would have to move at a speed of $(9600/6)/36 = 44.4$ cm/sec. This implies $44/3.2 = 13.8$ operations per second. Any increase in the number of furrows per ninda (say to 10, the most frequent number in Ur III times) inevitably results in a higher frequency too. Needless to say, no intermittent mechanical device capable of doing this was possible within the technological possibilities of second millennium Mesopotamia.⁶⁴ While the manual dexterity of trained workers cannot be underestimated, it can be safely said that to manually drop tiny amounts of seed at the frequencies required by the above considerations is beyond the abilities of the most skilled worker. Any type of mechanical device within Mesopotamian possibilities (controlling the rate of fall of the grain by adjusting the size of the opening at the bottom of the funnel, for instance) could only provide a more or less uniform flow. In this case the phrase "every two fingers" makes sense only if an average of one grain is dropped at each interval. This is impossible because then only less than one third of the expected amount of seed (one gin per ninda, see comments to next line) would be dropped. It seems thus wise to go back to Landsberger's original interpretation and see in line 50 advice

on how deep the seed has to be dropped, its density being given in line 51. The seeder-plow has an inherent tendency to drop the seed too deep; the advice about the proper depth is thus an apt one. A depth of two fingers (ca. 3.2 cm), although somewhat shallow, is about right.⁶⁵ No argument to bolster or defeat one of the two hypotheses, density and depth, can be built on the use of the postposition -ta. In the first case, the postposition would be used in its regular distributive sense. In the second, it would be a locative with remote deixis as seen, for instance, in ^{giš}ellag-mu kur-ta⁶⁶ mu-da-šub ... ^{giš}E.KID-ma-mu ganzer-ta mu-da-šub "my bow fell down there in the netherworld .. my E.KID fell down there in Hades" *Gilgamesh and Enkidu* 175, or in pú-ta šub-šub-ba "someone who keeps dropping things down a well" *Edubba* B 164. Line 51 gives the sowing rate per length unit; see remarks to line 46. According to the calculations in Thureau-Dangin 1909:19, 7,200 barley corns occupy a volume between 0.39 and 0.42 liters. Therefore one *sila* (ca. 1 liter) would have between 18,461 and 17,143 barley corns, and one *gin* between 307 and 286; this, if the seed were dropped every two fingers — in the hypothesis discussed in the preceding line — implies an average of a little over three barley corns every time. It seems preferable to assume that all the advice about seed density in FI is contained in line 51: 1 *gin* of seed will be regularly spread over a section of furrow 6 m long. Before one visualizes a thickly planted row, however, it is good to remember that the germination rate of the seed must have been at the time well below 25% in the best cases.⁶⁷

52-53. The term a-tur-ra (with vars. a-tùr and é-tùr; (any relation with é-tùr "cattle pen"?) appears so far only in this line and in the passage from *Winter and Summer* 181, quoted in the comments to line 47. The bilingual lexical text BM 23331 ii 8 (see 8.3) quotes this line, but, unfortunately, the scribe skipped this time the Akkadian translation. This may be taken as an indication that the line was already obscure to some OB scribes. The a-tur is obviously the place where the barley grows, but precisely which part of the furrow is intended, and particularly what the difference between this word and ka-sal (lines 11 and 67) is, is not clear. It seems unlikely that the drill plow dropped the seed on the slanted part of the furrow,⁶⁸ it may be assumed that a-tur-ra means the bottom part between furrow ridges; provisionally, it may be translated "hollow" (of the furrow). The verb suhur is a literary hapax, though well attested in lexical sources. It has two main meanings "to trim or comb the hair" (*šummuṭu*, *qamāmu*, *kezēru*) and "to scratch," "to incise" (*ekēku*, *nuqquru*, cf. also *šaddu* "scratch mark").⁶⁹ The verb suhur must be used here in some sense derived from its second meaning, along the lines of "to make an incision and insert something into it." The clause is intransitive with a-tur-ra in the locative. In any case, the verb indicates a defective placement of the seed, due to a faulty position of the share. The part ^{giš}níg-ku₅-(da) = *kissu* (syn. *dur* and *PA*) is in all probability a "wedge" to tighten a bound join, here controlling the angle of attack of the share to correct the defect described in the previous line. It must always be remembered that the Sumerian plow was not put together with mortises and tenons, but with dowels and wedges, secured with ropes. Such joins would loosen with the efforts and vibrations of the parts during work, hence the advice of line 54. The plow's tongue could be tipped up and down, with wedges held in place by rope (cf. Russel 1957:5).

6. Commentary

55-56. The section 55-62 gives advice about the tracing of the furrows, their shape and maintenance. The terms used, even if lexically attested, are unfortunately obscure and the tilling practices described are difficult or impossible to reconstruct. Besides the terminological difficulties, there is a lack of information on some basic points. First, did the farmers use furrow irrigation or border irrigation?⁷⁰ No direct textual evidence answers unambiguously this question. The absence, however, of literary allusions to water running along the furrows can be taken as an indication that basin irrigation was probably in use. Secondly, the shape of the transversal profile of the cut, made by the share and the wings of the plow is unknown. The furrows section would be quite different depending on the type of irrigation. Lines 55-56 mention two types of furrows: "straight" (si-sá) and "crooked" (šibir). It is assumed here that these terms have to be understood in a vertical, not a horizontal, plane, i.e., they have to be translated "vertical" and "slanted," respectively. Zigzagging, a meaning sometimes proposed for šibir, would be a most unwieldy and agriculturally senseless maneuver with an oxen-driven plow. If the text is understood in the sense that furrows are made with the plow held alternatively upright and slanted, the passage is strikingly reminiscent of a much discussed theme found in the Roman agronomists:

Bubulcum autem per proscissum ingredi oportet alternisque versibus obliquum tenere aratrum et alternis recto plenoque sulcare sed ita necubi crudum solum et immotum relinquat quod agricolae scamnum vocant.

The plowman, furthermore, must get on the broken ground and in alternate furrows must hold the plow slanted and in alternate furrows plow vertically and fully, but in such a way that he does not leave any solid and untouched soil, what the farmers call "balk" (Columella RR 2.2.25).

Omne arvum rectis sulcis mox et obliquis subigi debet.

Every field must be worked with straight furrows and then with slanting furrows (Pliny NH 18.178).

Et qui proscisso quae suscitavit aequore terga rursus in obliquum verso perumpit aratro.

And the one too who, after cutting the flat surface, breaks down again the balks with a slanted plow (Vergil Geo. 1.97f.).

The first passage is the more specific. Working only with the plow in vertical position leaves more or less wide balks or ridges between furrows. Plowing the adjoining furrow with a slanted plow will eliminate these unwanted, untilled elevations.⁷¹ There are, however, important differences between the Roman authors and FI. There is no doubt that the Latins are talking about the first breaking of the field, corresponding in FI to the one described in lines 30f. If the text of FI follows a logical sequence, it deals here with the work of the drill plow, which had wings, and since their angle and length are unknown, it is difficult to predict the exact results of the operation. The result may have been similar to the one described by the classical authors, a flatter field, easier to irrigate, but other purposes, e.g. covering the seeds (about which there is no information in FI), are also possible. It is clear that Columella refers to alternate furrows, but FI uses a formulation that can be interpreted as saying that two successive plowings, one with the plow in a vertical position, the other slanted, are done

on the same place. To plow the same furrow a second time, presumably to cover the seed, may seem uneconomical, but it is physically possible. The area plowed and seeded in one day is normally 2 *iku*, according to the Ur III texts (*Nikolski* 2 238; 243; *BIN* 5 272 iii; *YOS* 4 210; *TCL* 5 5675 v 5ff.; 5676 vi 11ff.; etc.). The length of the furrows (in *ninda*) in 2 *iku* is $200f$ (where f = furrows/*ninda*, see line 46). For $f = 8$, the length is 1600 *ninda*, ca. 9600 m. Assuming 6 h. of effective plowing per day, after subtracting time for turning at the end of furrows, rest for the draught animals and workmen, and accidents and sundry interruptions, results in a walking speed of 1.6 km/h. Even doubling the work length to account for a second pass of the plow, the resulting speed of 3.2 km/h, still below the speeds of 3.6 to 4.3 km/h experimentally obtained with a replica of a prehistoric ard (Hansen 1969:78). However, it makes more sense to understand the text as stating that the plow is held vertically in one furrow and slanted in the next. Other possible interpretations seem much less likely. For instance, a plow, especially one with a four-oxen team, is difficult to turn around within a small radius at the end of the furrow. It is thus a widespread farmer's practice, after ending the first furrow, not to make the immediately adjacent one but instead skip some and then go back to the second one. This results in rather intricate patterns. This may very well have been a common practice in Mesopotamia, but I do not think it is possible to interpret the present text in this sense.

57-59. These lines contain additional advice on making furrows. Unfortunately, if the terminology is lexically well established, the meaning of the terms themselves and the underlying physical realities are unknown. Some guesses can be made on etymological grounds, an always dangerous procedure, but the meaning of these lines cannot be determined beyond generalities. For a glossary of furrow terms, and for a justification of the translation, see 7.7. It is possible that some of the precepts given here may have something to do with future irrigation or drainage,⁷² during the growth of the plants. As stated above, it is not known whether the barley was watered by furrow irrigation or by border irrigation. The lack of allusions to water flowing along the *absin*-furrows seems to point to border irrigation. In this case, balks must have been necessary in certain points, and some sort of low wall or dike around the perimeter of the field must have been needed. See discussion of *sa-dúr-ra* in 7.1.3, and the data in Walker and Skogerboe 1987:33, and Wulf 1966:268 and fig. 369.

60. The work of cleaning the furrows of earth lumps and *débris* is frequent in Ur III texts. It is called *ab-sín-ta la-ag de₅-de₅-ga*.⁷³ The clods left over after harrowing (line 33) are broken up with a maul, but the ones that appear after sowing with the plow are picked up and thrown away. Since the clod density must have been extremely variable, the daily assigned area is rarely given, but note, for instance, 40 *sar* in *BIN* 5 342, and 50 *sar* in *MVN* 13 310. A curious description of this kind of work is found in *Proverb* 3.154: "one clod, one furrow, and I make three."⁷⁴ For OB Akkadian references, see *CAD* K 402a *kirbānu* 1b, and 1e.⁷⁵

61f. Two unclear lines still dealing with furrows, not with the making of the furrow itself, but rather with what one could call furrow maintenance; its object is, according to line

62, to facilitate the progress of the seedlings. For ki-sahar one can propose a meaning "silted spot." The equation ki-sahar-ra = *sukku epšu* Izi C 17⁷⁶ does not refer to *sukku* "shrine" (CAD S 361b s.v.), but is a derivation from *sakāku* "to block," cf. *sakīku* "silt," and *sakku* "silted." The hollow of the furrows has to be kept free from sediments deposited by wind or water; too much sand or silt will stand on the way of the seedlings or even prevent their germination. The actions to be taken, depending on the two different conditions stated at the beginning of the lines, are ra-ra and sig-sig. The verb sig-sig "to narrow" cannot refer to furrow intervals. Furrow spacing is treated in line 46, and, at the stage of work in 61f., furrows have already been made and their spacing cannot be altered. The verb sig must refer to furrow cross sections. The opposite of sig-sig is ra-ra in line 61. It seems reasonable to assume here ra = *rahāšu* A "to trample, to flatten." The contrast would be between narrow furrows, with steep sides, and wider furrows with flatter edges. The choice between the two profiles is somehow a function of the amount of silt deposits (ki-sahar, above). These deposits can be either all over the furrows, or limited to their ending section. In the first case, sediments, carried by wind or rain water, would cover the soil in the hollow of the furrows, making it difficult or even impossible for the seedlings to sprout. The second case presupposes irrigation, either immediately after sowing, or in the future. Irrigation after sowing is a current practice in modern Iraq (Poyck 1962:45; Wirth 1962:101). If it was done in antiquity, it would be implied by the present lines, with no explicit statement. Very tentatively, one could explain these lines as follows: if the furrows are "open," relatively free of sediments, the irrigation water will run off faster; if they are "clogged" (ka-tab), the water will stay longer in the furrows. Since the relationship between the rate of infiltration and the time the surface water is in contact with the soil is a simple, linear one (Walker and Skogerboe 1987:114, 210), this interpretation makes sense.⁷⁷

64f. Nin-kilim is a deity generally assumed to represent the mongoose, but compounds of this word and of the sign kilim(PEŠ) designate also various rodents and other very small mammals (see Hh XIII 184-204, and the enumeration in the incantation YOS 11 69:2-5).⁷⁸ The purpose of the sizkúr-rites (for which see line 87) is in this instance the protection of the seedlings from field mice and similar pests. See also line 66.

66. Birds can cause considerable damage to grain fields and not only by eating the grain. Some birds dig up the seed, others snip seedlings in two, or pull them up. Geese and similar birds will graze young plants. Mice dig up and eat freshly sown grain and seedlings (Briggs 1978:345). Field depredation by birds is illustrated by a curious text from PS Girsu (DP 546): 48 iku bir₅-ré gu₇-a, še-numun še-gud-rá gu₇-bi 8 <gur>-sag-gál, 1 še <gur>, še aša₅-ge tag-tag-dam, PN₁, sag-apin-ra, itu síg-ba-a, PN₂, nu-bandà, ganun-gibil-ta e-na-ta-gar "48 iku (of field) eaten by the birds, its (original) seed and oxen feed (were) 8 gur; PN₂, the superintendent put 1 gur of grain, from the new storehouse, at the disposition of PN₁, the chief plowman, grain to be planted in the field; month of síg-ba-a." That is, after the field had been ravaged, it was reseeded with 25% of the original seed amount.⁷⁹ In Girsu, there is a sort of agricultural worker called RI.HU (references in Or 6 [1923] 26f.)⁸⁰ who seems to be in charge of controlling birds in the fields; at least in some cases, he caught the birds with nets (DP 621).⁸¹ In Ur III,

there are workers charged with "chasing mice and birds" (pěš/kilim mušen dal-la BIN 5 225; JCS 16 (1962) 14 b 7⁸²; UCP 9/2 2 53) The "beak," or "tooth," of birds is a recurrent theme in literature; see references in PSD B 208a 4. All the passages in this section of PSD, as well as DP 546, use the sign bir₅(NAM) instead of buru₅.⁸³ This poses an interesting problem. The word buru₅ means not only "small birds" (sparrows, and the like) but also "locusts."⁸⁴ One may ask therefore whether the references above should be translated "locusts," instead of "birds." It is quite possible that the two different writings BURU₅ and NAM were intended to provide semantic disambiguation by graphic means.⁸⁵ The question requires further study, but at least in some cases, a translation "locust" deserves serious consideration.⁸⁶ In OB texts *maššar erebi* workers are mentioned in TCL 1 174:5. In the OB letter VAS 16 179, the field plagues are "at night wild cows," and "the whole day qaqû-birds fill the field up to the sky." Gazelles and birds (or locusts) are mentioned in Ai. IV 1 31f., 49f.⁸⁷

67f. Unless favorable rainfall conditions obtain, grain is watered. See Briggs 1978:309f. and, for the classical world, Billiard 1928:88ff., and White 1970:155. Since water is usually in short supply, the frequency and spacing of irrigations are important matters, discussed in FI lines 67-73. The imprecision about the growth stages described, however, prevents, up to a point, the modern reader from determining the exact irrigation times prescribed. There is no explicit irrigation immediately after sowing, but see remarks to lines 61f. The term a numun-sag-gá "water of the first seeds" (line 68) is a topic found in literary texts. Four irrigations are recommended, but Wirth 1962:101 speaks of five and six, when possible. For an irrigation immediately after sowing, see comments to line 61f. The term for "to irrigate" using canal water is a—dug₄; see remarks to line 4. It is extremely frequent in Ur III agricultural accounts; references in Sauren 1966:197ff. and add SACT 2 17; 18; TENS 81; 83; 113; 271; AUCT 1 557; MVN 4 23; etc. etc.

69. For the terminology, mostly of nautical origin, of reed mats and their sizes, see Civil 1967:67ff. The line describes a stage after tillering when the plantlets fill the furrow line in such a way that it is not easy to visually distinguish the individuals. "Like a mat" will evoke for the English speaker a visual image different from the one perceived by the ancient users of FI. It must be understood not of an overall coverage of the field, but of the parallel lines of the green furrows compared to the parallel reed strips of a mat.

70. The word lillan, (ŠE.SAG).LUGAL, Akk. *lillânu*, *jarahhu*, *simdu*, most definitely designates a stage in the growth of the plant, not a type of grain, as suggested in Powell 1984a:66.⁸⁸ The presence of SAG in the logogram could be an indication that lillan designates the barley plant when it starts heading.

71. The term še-luh-ha-an-sù-a is attested as a lexical hapax: še-luh-àm-[s]ù = *šeluhanserru* Nabnitu XXIII 224 (followed by the synonym še šà-a-ab-[x]).⁸⁹ The term can to be analyzed as še + ù-luh—sù, "barley" + "to send out offshoots," taking -an- as a verbal prefix. If so, one is left with a rather vague expression that can be translated simply as "the barley is thriving." However, an may not be a prefix, but may be the noun "ear." In this case, the

6. Commentary

growing stage described here would be when the ears are already extended. The phrase appears without an in the epic topic ì-a-lum-lum ù-luh-ha sù-sù "the one who thrives, the one who sends out offshoots"⁹⁰ The disease sa-ma-ná (loanword from Akk. *sā/amānu*, perhaps from *sāmu* "to be red") is a rather general term that covers not only grain diseases but also skin diseases of humans and animals, presumably characterized by discolorations.⁹¹ In the case of barley, it designates, perhaps not exclusively, the fungal infection commonly known as "leaf rust,"⁹² traditional terror of farmers, the *robigo* and *erusbē* of the classical authors. The Samana is personified as some kind of monster (Nougayrol 1949:215ff.). The Romans, who deified the pest as *Robigo* (fem.) or *Robigus* (masc.), had a religious ritual (*Robigalia*), instituted by king Numa, celebrated for four days in April to ward off the disease. Several Mesopotamian incantations against Samana are known, but none is unambiguously against the grain disease.

72. At the stage of growth mentioned in this line, the ears are already formed but still green. At this point, according to a traditional practice, the grain could be picked, the husks removed, and either singed or ground into a special kind of flour for small scale consumption. The process is described in Pliny *NH* XVIII 14, 73 (flour from wheat); for more recent times, cf. Dalman 1933:260f. (singeing).⁹³ Linguistically, the emphasis here is on dehusking: *še bir-ak-a* = *quliptu* Hh XXIV 163b (with syn. *še-zil-zil-la*) and *lú še-bir-ak* = *ša qulipti* OB Lu C₁ 3 (followed by *lú še-sa-sa* = *muqallū* "the one who roasts grain"). The reading *bir* is confirmed by the var. *bi-ri* in A₃. This grain was apparently the source of the "roasted barley," often mentioned in texts, sold in OB markets. In *Dialogue* 2 173f. the low status of a family is described by saying, among other things, "your sisters are 'barley roasters,' bringing out to market baskets of roasted barley."⁹⁴ In *Lugal* 346, *kur-kur-ra ab-sín-na nu-gub-bu še bir-a i-im-ak*, the verb *bir-ak* means "to sow broadcast;" at least this is how it was understood by the late translators: "in the mountains, no furrows were made, the grain was scattered" (i.e., sown broadcast, not in furrows with a plow).⁹⁵ The last irrigation in Iraq takes place when the plants start turning yellow (Wirth 1962:101).

73. This is an increase of 10%. It is not clear whether this increase is considered the result of all four irrigations mentioned since line 67, or only of the last one. For yield gains due to additional water, see Briggs 1978:310f., and, for older data, Billiard 1928:88f.

74. The verb *ur₅-gúr* most likely corresponds to Akk. *qadādu*, taken in the technical sense of bending, said of overripe barley with shedding ears and breaking stems. The barley in this condition was called in Akkadian *hamadīru*,⁹⁶ with several variations in the Sumerian term: *še ur₅-gúr-ma* OBGT III 21 (identical to the preferred variant in FI), *še KIN-gúr-ma* Hh XXIV 170, and *še ur₄-ur₄-KUL*, below.⁹⁷ Literary allusions to grain which has not been harvested in time are: [...] *u₄ á-bi bí-in-dib : kīma ŠE-im hamadiri simana tulteti_q* "like overripe grain you have gone beyond the right time" (ZA 64 144:35), and *ki-ma ŠE ha-ma-du?-ri qá-ad-du-ù*, gloss to *še ur₄-ur₄-KUL-gin₇ sag ba-d[a-gúr]-[e]-eš* "are they not bent over, like overripe grain?" *Two Elegies* 53:54 (collated from photo).

75. Harvest time naturally was the culminant period of Mesopotamian agricultural life. In Ur III administrative texts, the year was divided in two seasons: en-te(en) "cold season, winter" and buru₁₄ "hot season, harvest;" e.g., pisan dub-ba níg-kas₉-ak á en-te á buru₁₄ "tablet basket with the accounts of winter and harvest wages" *ITT* 3 6074; má á buru₁₄ á en-te-bi 18 gur "the winter and harvest rental of the boat is 18 gur" *MM* 710 r. 4' (unpubl.). The right moment (u₄ á-bi, *simanu*) for cutting the grain is extremely critical and is discussed in all classical and modern agricultural treatises. Before mechanization, harvest required a very large number of workers for a very brief period of time, and labor migration at this time of the year was very common. In Ur III times there is a record (*TCL* 5 6041)⁹⁸ of 21,799 workers and their supervisors, provided by the governors of many cities to harvest in the Umma area. Many of them came from northern towns (Babylon, Sippar, Kutha), some 80 Km away. In *HAV* 140 iv r. 2 provisions are given to messengers erín še gur₁₀-gur₁₀ zi-ge-dè gin-na-me "who went to recruit harvest workers." The area harvested by one worker in one day is normally given as 1 *iku* (ca. 3,600 m²), e.g., *ITT* 2 621; *NATN* 620 i 1ff.; *NRVN* 270, but occasionally one finds other amounts: 30 *sar* (ca. 1,080 m²) in *SACT* 2 28, for instance. Comparisons with rates in other places and times,⁹⁹ especially if they are from fields where the seed had been broadcast, are misleading since in Mesopotamia grain was planted in well-spaced rows. The grain was cut with copper sickles, Sum. *urudaKIN* or ŠE.KIN, Akk. *niggallu*, of a nominal weight of 10, 12, 15, or 20 *gin*, ca. 87, 104, 130.5, and 174 gr, respectively. In a sample of 2776 sickles, 26.4% weigh 12 *gin*, 71.4% 15, and 2.2% 20. These are nominal weights since the sickles of the texts are normally weighed in large numbers and the individual weight is in general somewhat lower than the nominal weight. *TŠA* lxi shows the meticulousness of the accountants: one 15 *gin* sickle is said to weigh in fact 14 1/5 (or 1/6) *gin*. Whether the difference is due to uneven manufacture or to weighing tools worn out by use is not clear. The sickles are said to be "in good shape, complete" (*silim-ma*, e.g., *Or* 47-49 49; *RA* 12 (1915) 20 no. 5; written *si-lim-ma* in *BE* 3 7:14) or "broken" (*al-zi-ra* *BE* 31 7:15; *ba-zi-ir* *Limet* 1960:281). They were provided with wooden hafts (*giššu*) made of *giš-ab-ba-(k)-wood* (*MVN* 10 230 i 16; 11 20ff.; *MVN* 1 106 iii 12;¹⁰⁰ *Durand Catalogue EPHE* 1 297; etc.) or, at times, it seems, from reeds: 40 *sa-gi urudaŠE.KIN ak-dè* *MM* 618 (unpubl.).¹⁰¹ The sickles were not sharpened with a honing stone or the like, but, as it was customary in other places (*Billiard* 1928:63), by hammering: (*kin*)-dúb-ba (*Limet* 1960:131). Curiously, sickles were sometimes inscribed with the name of the owner (*BE* 3 71), and so were the *ha-bù-da-axes* (*Or* 47-49 130). No similarly detailed information is available for other periods. In PS Girsu there is mention of sickles with serrated edges: 62 *šumuruda še ŠE.KIN-ŠE.KIN* (*Nikolski* 1 88). Sargonic texts mention sickles but without numerical data (*STT* 9; 94; 132; *MVN* 3 79). In one instance, Kassite sickles weigh 13.7 *gin* (*BE* 14 9a). The reading *gur₁₀* for (ŠE).KIN = *esēdu* "to reap" seems well-established. The reading *kin* in the meaning "sickle" is confirmed by the variant *gín* in *Hh* XI 413. For the reading of KIN in the month name *še-KIN/sag-ku₅*, see 7.5.2.2.

76-78. The harvesters must work in teams of three. In Ur III texts these teams are not explicitly mentioned. Only the reaper's work is called *še-gur₁₀-gur₁₀*. The other two must be sought among the workers assigned to sheaf and stack making (*zàr-tab-ba* and *garadin* work, see line 80). The ratio of grain reapers to the other workers is 15.5:29 in *NATN* 739 iii 4'f.,

and 100:295 in *TMH NF* 1-2 171 i 1ff., roughly 1:2 and 1:3, the latter identical to the practice prescribed in *FI*.¹⁰² The writing $TAK_4.IM$ is unusual. The form $IM \times TAK_4$ is found in Girsu (*DP* 220 ix 3; *ITT* 1 1101; 2 2827; 3 5452; 5 6878; 8216; A 2577) and the form $IM.TAK_4$ in the lexical tradition (*Diri IV* 142ff.,¹⁰³ and parallels). Elsewhere simple TAK_4 is used. Here the required meaning is "to cut," confirmed, on the one hand, by the lexical translations *nakāsu*, *harāšu*, *naqāru*, etc., and, on the other, by the occurrences of the term in administrative texts where the verb is said mostly of trees (*giš IM × TAK₄-a*, passim) and once of grass (*ú IM × TAK₄* in *ITT* 5 8216:3'). Only in *TCL* 5 6048:2, 12 (Falkenstein *Gerichtsurkunden* 215) is it used in a figurative sense "to be cut out from a food share." Of the other two workers in *FI*, the third collects the amount of cut grain that will make a sheaf of the proper size, and the second ties the sheaves up. The sheaves were tied with a string one cubit (ca. 50 cm) long: *éš-da 1 kùš-na um-da-an-lá* "he (the workman) ties you (the grain) with his one-cubit rope" *Lahar and Ašnan* 148.

79. This line does not seem to refer to gleanings, mentioned in other literary sources, e.g., *Lahar and Ašnan* 50f.,¹⁰⁴ but to the gathering of the harvested ears to make sheaves and stacks. The term *šu-huz—ak* is explained in *Hh XXIV* 164: *še šu-hu-uz = šumamtu*, literally "'burnt' grain" in *CAD Š/3* s.v.¹⁰⁵ The usual meaning of *šu-h/ru-uz* is "to burn," so that in the present context one can translate "do not let the grain dry too much," but a different, idiomatic translation may be acceptable. At this point, the main concern is to avoid handling the sheaves too roughly, which would cause the ears to shatter.

80. The Sumerian terminology for sheaves and stacks is at times confusing. In *Ur III*, the word *garadin* (*LAK* 419 and its graphic variants)¹⁰⁶ is used only in Nippur, Ur, and Girsu; Umma seems to use only *zār*. The first, Akk. *kurullu*, *kiššu A*, *nagabbu*, designates a stack of sheaves.¹⁰⁷ Administrative texts give the size (1 *ninda* long *NATN* 739 iii 4ff.), or measure them according to what could be the estimated grain yield: 25 *silā* (*CT* 1 22 iii 8), 30 *silā* (*MVN* 7 387; 402; *RTC* 405), or 35 *silā* (*MVN* 7 387). Note, however, that the *silā* could be also a measure of the physical thickness of the stack.¹⁰⁸ The number of *garadin* per *iku* is 29.5 (*TMH NF* 1-2 171), 18.7 (*NATN* 739), and 17.4 (*CT* 1 22 iii 7f.). One workman was expected to make 10 *garadin* a day (*TMH NF* 1-2 171; *NATN* 734 iii; *UET* 3 1455). See also *NATN* 620 ii 1ff. *garadin* *íl-gá ù ú-dur garadin-na a sur-ra* "(workmen) to carry and tie(?) (the sheaves of) the stacks, and keep the water away from the stacks." In literary contexts, the word is found in *Gudea cyl.* A iv 24 = v 21; *Hoe and Plow* 177; *Winter and Summer* 62; *Iraq* 31 (1969) 19 r. 3ff. The word *zār* strictly means "sheaf," but metonymically it designates also the pile of sheaves or stack. Umma thus uses *zār tab-ba* "to pile up the sheaves" to designate what is called elsewhere *garadin-work*. There is no numerical information about *zār*. The literary expressions *zar—sal* "to spread the sheaves" and *zar—du₈* "to pile up the sheaves" (see Maekawa 1986a:95) are not opposite but practically synonymous. Making the stacks is a process that combines piling up with spreading. The grain is left in the stacks to let it dry sufficiently for threshing. For this purpose, the sheaves are gathered in one spot, not compacted but carefully spread, heads in, to ensure proper and even drying. The term *zār-tab-ba* "to pile up," although found alone, is most often followed by *šu-ùr-ra*, perhaps, in this context, "to spread." A particular

aspect of drying when the flood waters started coming into the fields is specifically expressed by še a-ta du₈-a (TŠA 2 iv 15; 21; TUT 7 i 7'; 13'; 20'; AOS 32 D 24:3; etc.).

81. This line is an example of the suffix -gin₇ used in its temporal sense, as in kin-si₇-gin₇ "during the evening" or, in general, in constructions of the type u₄+ (clause)+a+gin₇ "while ...," see 4.1.2.1. Otherwise it would be an anacoluthon. For u₄-tur-ra = *ana um šehir*, see *Dialogue* 5:176 (TIM 9 6:22 and dupl.) and compare u₄-tur-bi-šè *Ur Lament* 95; 118.

82-83. The verb du₆-ul means "to gather," Akk. *puhhuru*. Here its object is ambiguous: "its number" may refer to the number of workmen needed or to the proper number of sheaves. Compare lú garadin du₆-ul-du₆-ul = *mupahhir kurulli* OB Lu A 195. Note also *Lugal* 15 ukkin(?) -bi du₆-ul-du₆-ul : *ummanšu upahhar*.¹⁰⁹

85-86. The farmer must be patient and not let his haste to taste the bread, made from the new grain, shorten the time required for the proper drying of the barley ears. The dabin was a coarse type of barley flour. The food designated ninda ka-gu₇ was a type of bread listed among choice victuals in PS Girsu; references in Rosengarten 1960: 319ff. It is attested in Sargonic texts, e.g., *TMH* 5 157 ii 3; *ITT* 2 4404, but not, it seems, in Ur III. For the terminology of threshing, see lines 98ff.

87. The rites called sizkúr = *niqû*, were the most frequent religious rites, performed in all kinds of places and on all kinds of occasions. The ones recommended in FI (lines 64, 87, 101, 106) are not mentioned specifically in administrative texts where they are simply designated as sizkúr a-šà-ga "rites of the fields,"¹¹⁰ e.g., *SACT* 2 297; *Nikolski* 2 322; AOS 32 R 3; Durand *Catalogue EPHE* 235. Only the *sizkur*-rites for the threshing floor, apparently more important, are occasionally mentioned by name (sizkúr ki-su₇: *SACT* 2 233; Boson *Tavolette* 333; *Or* 47-49 390; etc.).¹¹¹ The reason perhaps is that they required a sheep, while the other rural rites required only small amounts of various types of flour (zi-sig₁₅, zi-gu, eša, zi-dub-dub, and, occasionally, dabin), dates, and beer. There is no further information about the rites themselves, about the performers,¹¹² or about the words that may have been recited on such occasions.¹¹³

88f. These lines deal with the transport of sheaves, which must have taken place simultaneously with the activities described in lines 91ff.. Despite the superficial resemblance with line 102, the preferable reading here is not lá, but e₁₁, at least according to some textual variants. The verb e₁₁ expresses movement with a change in level of undetermined direction and thus is equally well translated by Akk. *šûrudu* "to bring down" as by Akk. *šûlû* "to bring up." It may also refer to a system of orientation which does not necessarily imply a change in physical height, compare English "up/downtown." The threshing floor was apparently considered to be up, i.e., away from the river or canal, a natural location at the time when the water levels were rising: ki-su₇-šè ... e₁₁-dè, ki-su₇-ta ... e₁₁-dè "to bring up to the threshing floor and ... (after threshing) to bring down from the threshing floor" *Lahar and Ašnan* 197f. Other examples from agricultural accounts: še má-ta e₁₁-dè "to bring grain down from the

6. Commentary

boat" NATN 739 ii 5; a-šà-ta e₁₁-da "what has to be brought down from the field" NATN 478; má in-u šà tum-ma-al-šè e₁₁ "a boat (with a load) of straw to go up to the Tummal" NATN 245:7. In line 89, še—lá does not refer to winnowing the grain (as in line 102) but to its transportation to the threshing floor; compare anše še ki-su₇-ta lá-dè "donkeys to carry grain from the threshing floor" DP 148 ii 5f., or a-šà FN-ta še im-lá "(the workers) carried grain from the field FN" UET 3 1330. The second part of line 89 includes an idiom attested elsewhere; for references, see PSD B 23 a ba₃ A,¹¹⁴ which here probably means "to handle in small amounts," lit. "to treat as thirty shekels." In literary texts the phrase is mostly used in a pejorative manner, "to treat as something worthless."

90. The word translated here as "threshing floor," kislāh (KI.UD), has a wider meaning; it means basically "empty land space," "vacant lot." A KI.UD, or part of it, becomes a threshing floor (su₇) when it is next to a field and properly prepared for the task. Compare the proverb é-e kislāh hé-bí-ús a-šà-ga su₇ hé-bí-ús "a vacant lot (or courtyard) should be next to a house, a threshing floor to a field" *Proverb* 2.144. A Nippur field map (Zettler 1989) shows a plot of 49 iku of which 2 (= 4%) are KI.UD. The word kislāh is rare in Ur III, but is found in Nippur texts.¹¹⁵ There is a certain imprecision about kislāh and related words in the late lexical tradition where KI.UD is translated by *maškanu*. See also remarks to line 94. Note níg-ki-gar = *mas-ga-nu* VE 125.¹¹⁶ For ki-gar—dug₄, see line 8.

91. The meaning "circular path" (CAD H 134b s.v.) for har-ra-an-gur = *kanagurru* (Hh II 274, with late var. gán-gur₁₀; cf. Proto-Izi I 239) comes solely from the element gur. The verb si—sá "to make straight" cannot be used as a definitive objection to the meaning "circular" since it means also "to put in good repair." Here, the notion of a path "coming and going," from the field to the threshing floor and back, satisfies the etymology and fits better, because of the mention of wagons in the following line.

92. The wagon (gišmar-gíd-da = *eriquu*) is not frequent in Ur III and OB agricultural texts; it was hardly part of the equipment of the average farming enterprise. Its inclusion here shows, in any case, that its use was considered theoretically advisable. The text RB 86 241 gives the parts of a four-wheeled wagon, and wagons are mentioned in MVN 3 260; ITT 5 6898; 9286; *Bulletin of the Buffalo Soc. of Nat. Hist.* 11 (1915) no. 2:20; ASM 68:7 (unpubl.); UET 3 272 ii 17'; 721:6'; etc. For the Sargonic period, see RTC 239, and for OB or later references, see CAD E 296 *eriquu*, and, in general, Salonen 1968:28ff. The word mar-gíd-da could be abbreviated to mar. Thus in ASM 68 after a first mention in full, the wagon is subsequently referred to as gišmar-bi "that wagon" (line 9). If one assumes that the gišmar, mentioned in Umma agricultural texts, is, in some cases, not a shovel or a hoe, but is rather an abbreviation for mar-gíd-da, the number of Ur III references to wagons increases somewhat. The word is found in the phrase gišmar-da ri-a "riding with the wagon." Typical references are: 6 guruš mar-da ... u₄ 41 ri-a ka-ma-ri^{ki}-ta ... muš-bi-an-na-šè "6 men riding with a wagon for 41 days from K. to M."¹¹⁷ BIN 5 230; and, similarly, SACT 2 53; MVN 3 252; AOS 32 H 21; MM 621 (unpubl.); MVN 3 241 (carpenter working on wagons for 10 days). The context of many of these references clearly shows that the work in question took place at harvest time. PS Girsu

also uses *gišmar* for "wagon," its parts are frequently mentioned in lumber texts. Note also *gišmar-e lá-a* "reeds carried by wagon" DP 351.

94. The bilingual source B₃ confirms the equation *du₈ = nadû ša maškani* (KI.UD) Aa VIII/1:144, cf. Comm. Aa VIII/1:12f. Its meaning may be more general than "to prepare the ground of the threshing floor" and may include piling up the sheaves brought in from the field. Except for Nippur (see line 90), which like OB, uses KI.UD, the usual term for threshing floor, during Ur III times, is *ki-su₇*. In documents of this period, the word ends in -r (Goetze 1935-36:143ff.), while in the lexical sources (Proto-Ea 164; S^b I 238) it ends in -l.¹¹⁸ The writing with *su₇* alone is infrequent in Ur III (e.g., ITT 2 770) but regular in Sargonic (ITT 5 6673; STTI 79; 138; 156). The form *ki-su₇* is, however, the one found in PS Girsu (DP 604 ii 2; v 5f.; DP 605 i 5; iii 1, 5; v 1;¹¹⁹ VAS 14 40 viii; RTC 74 iv 3) and Fara (TSŠ 363:2; 558:2; but *su₇* alone in 750:2). The translation "threshing floor" of (ki)-*su₇*, firmly based on the lexical tradition (see refs. in CAD M/1 369a *maškanu*), has been generally accepted since Scholtz 1934:55 ("Feldtenne"), with few dissenting voices (ŠL 461:230; Rosengarten 1960:62, Bauer 1972:224). A meaning "fallow" has been occasionally proposed (e.g., Rosengarten 1960:62). The two meanings are not as different as it would first appear, and both are lexically acceptable: the term designates an uncultivated portion of a field (*nidûtu*, etc.); a portion of this empty space was selected as threshing floor and its surface was conditioned accordingly. There seem to be no traces in Mesopotamia of a specially paved area for threshing, as is customary in other cultures. Traditional instruction on the preparation of the threshing floor is found in all Latin agronomists (Cato RR 91, 129; Varro RR I 51; Vergil *Geo.* I 178ff.; Columella RR II 19, 1; Palladius RR VII 1). They often advise to let the floor rest, e.g., *area ... solibus siccanda relinquatur* Columella, loc. cit.

95. The interpretation of this line is based on *lú še bad-rá = be'ēšu* OB Lu A 199, and C₁ 1, with *še* as object; B₃ uses *bal* and gives the translation *ina bé-ši-ka*. Pertinent lexical data and references are to be sought in CAD B 214a *bēšu* rather than under *be'ēšu*. Note the synonyms: *hal* "to divide" in Sumerian, and *petû* "to open" in Akkadian, as well as the proposed translation "to fork," in CAD l. c. Given the context, one can translate here "to thresh," as a general term, with no indication of the technique used. Another acceptable translation would be "to spread," "to scatter" the grain, previously to threshing. In the second part of the line,¹²⁰ the term *níg-ur₅/ûr* is translated *bittu* in B₃; the Sumerian term may be present in a) *níg-HAR-ra-tur-tur = ripsu* Nabnitu XX 122 (next to *še-ra-ah = ripsu ša še-im*), and b) ^{tú}*níg-HAR-ra-ak-a = gadmāhu, nalbašu, tuzzu* Hh XIX 144ff., terms designating fine quality clothes (whether because of their material, cut, or finish, it is not known). Akk. *bittu* is found here, in a context of threshing, and in texts dealing with garments: UET 6 414:12,¹²¹ and Iraq 39 150:40, 45. The second half of the first passage is damaged, and practically nothing can be said about *bittu*, except that it is something related to finished clothes. From the second reference it would seem that the word designates something on the surface of the material. If the word is the same in both types of contexts, the meaning of the noun plus the verb (**batātu?*, **abātu?*) should probably be sought along the lines of "to smooth the surface," "to compact the surface," or the like.

96. The three traditional ways of threshing, which often coexist in the same area, are all mentioned in lexical sources or in agricultural documents. (1) "sledging" is še bad-(rá), Akk. *petû* Hh II 336f. and *be'ēšu* (OB Lu references, in commentary to preceding line), and here. (2) "treading" by animals is še—ús, Akk. *dāšu* Hh II 335, Ai. IV i 69; še—ra-(ah); (še)—šub and še—gaz in B₃. (3) "beating" with flails is še (giš) ra-(ah/an), Akk. *rapāsu* OB Lu C₁ 2, and here line 85a. Some additional remarks on the various ways of threshing. (1) The threshing sledge is called giš-bad-(d/r) in next line and in Hh VI 59.¹²² The Akkadian word is *gissappu*, with many variants, which also happens to mean "footstool," see CAD K 361b *kilzappu*. A worker may have been riding the sledge, standing on it, which may explain the term. The giš-bad is mentioned in literary texts: še-gin₇ giš-bad-rá šu um-ma-ni-ṛti¹ "after you grab him, like a threshing sledge (grabs) the barley" SRT 6 iv 7; next to the ^{giš}mar "winnowing shovel," in VAS 10 197 iii 2' [ḡi^šm]ar giš-bad-e si-sá-a-mu (restored from duplicates). (2) The process is clearly described here, especially in the bilingual version B₃, where the verbs are Š-forms from *habātu*, as shown by the corresponding še ba-ra-gaz in B₃. The meaning "to thresh" has to be added to the already complicated semantics of *habātu*, see Kraus 1975.¹²³ (3) (še) giš—ra-(an/ah) is the most frequent term, perhaps even to be considered a general term, regardless of threshing technique used. It appears in PS Girsu in the phrase še ... ensi/nu-bandà giš bi-ra "the governor/superintendent had the grain threshed" DP 559 ix 6; 564 iv 2; *Nikolski* 1 39 vi 6; etc. One Sargonic date reads: mu ùl-ùl še lagaš^{ki} giš bí-ra-a "the year when U. threshed the Lagas barley," i.e., took the harvest by force (RA 14 163).¹²⁴ The expression še giš—ra is the one commonly used in Ur III, e.g., MVN 4 20; *Nikolski* 2 97; 140; RA 34 76; etc. Once še—sìg is used in UET 3 1346.

97. The teeth of the sledge were, in all likelihood, made of wood; there seems to be no Mesopotamian evidence for the typical flint teeth found in so many other places. The Sargonic text OAIC 33:17, 31 mentions the "teeth" of the threshing sledge. In the *Aluzinnu*-text iii 19 (JANES 6 (1974) 78) a hungry person is said to have "the teeth of a threshing sledge."

98. The translation is based on B₃ where the verb is šub = *šuhbutu* (see comments to line 96). For dūr-dūr, cf. perhaps KU-KU-ru = *pašālu* Antagal III 222, designating a certain gait of quadrupeds, see remarks in Civil 1975:135f.; cf. also KU-ru-(n) = *rahāsu* BM 23331 ii 4 (8.3).

99. The amount of grain threshed by one worker in one day is given as 300 *sila* (TMH NF 1-2 171:9f.), 240 *sila* (SAKF 18), and even as little as 80 *sila* in HLC 2 pl. 73 iii 7.¹²⁵

101. The verb nir, Akk. *zakû*, "to clean" is here a general term for "to clean the grain," (by winnowing); see CAD Z 29a s.v. 4d. Note ṛdu₆-du₆¹-lá še nir-ra na-nam "let clean grain be in the (grain) heaps" AOAT 25 362;¹²⁶ še nir-ra mu-ud-na-zu hé-[me-en] "may you be (like) clean grain for your spouse" *Lullaby* iii 59.

102. The term for winnowing in Ur III is (še)—dé, lit. "to pour," see, e.g., TMH NF 1-2 171:14ff.; *Nikolski* 2 140:13; *Atiqot* 4 32; SET 166:3; Boson *Tavolette* 372 r. 7. In TMH NF 1-2

171:12f. there are workers doing še ma-ma-ra-ra-a (coll. Waetzoldt 1976:328), probably for ma-ra-ma-ra-a < mar-mar, which must designate winnowing with shovels (cf. mar = *zarû* LBAT 1577 ii 10f., comm.). Since še—dé-a, zíz—dé-a, and in—dé-a follow, there must be some difference between the two operations. In the first each worker produces 120 *sila* per day, in the second only 15 *sila*. Since winnowing is an operation typically repeated several times, it may be assumed, in view of the difference in processed amounts, that the first term refers to regular winnowing, the second to a final, more careful, cleaning. When only one term is used, it would designate both operations. Other related terms are in—bu₅-bu₅ "to blow away the straw/chaff" (Akk. *nesû* D),¹²⁷ e.g., AB 25 41:16, AnOr 1 239; SET 269; YOS 4 298:33; ITT 5 6905:5'; in—dé MVN 7 108; MVN 9 10:4 (in-na in-bi nu-dé); 145:2 (in-bi ì-dé), 13 (in-bi nu-dé); in—búr JCS 31 240 13; še in-nu-ta ba-al-la "grain found among the straw" NATN 728 iii 4'; and, probably, in—(nu)-de₅. In post-Ur III lexical sources, še—lá (Ea I 274a; S^a Voc. Q 27') and še—è (Diri I J 24'; Aa III/3:173) are given a meaning "to winnow."¹²⁸ These last two terms seem to have other meanings in Ur III. The first, še—lá (used here by FI), means also "to carry grain," see, e.g., a-ša FN-ta še im-lá "(workers) carrying grain from the field FN" UET 3 1330. The second, še—è NRVN 178; lá-ì še è-a-kam ... KU še nu-è-a-àm *Aramco World* 15 (1964) 24:3, 5, stands probably for še-giš—è (see remarks to line 105).

103. Cf. lú še-lá-ki-ta = *zāri šapilti* "the winnower below" Hh II 341, and parallels. The term does not necessarily imply a physical difference in level between workers, it may mean simply "assistant," "helper." However, a lower position relative to another worker in top of the pile, or a particular orientation in respect to the wind, are by no means excluded.

104. This line refers to carrying the grain (cf. Akkadian translation in B₃) to piles for measuring and distributing. The physical reasons for the men working in pairs are not immediately obvious, unless it was done to prevent theft. The use of two workers is reflected in the terminology of Hh II 342f., where this activity is designated by the verb *bal*.¹²⁹ Baskets (*gi-gur-še-bal* = *napšāru* Hh IX c 1), at least in one case of 60 *silā* capacity (TCL 5 6036 vii 40), were used to transport the grain. Workers *gišgur še lú^{ga} dīm-ma* "to make baskets to carry grain" are listed in TMH NF 1:2 171 r. 11'. Other carrying implements such as the *si-par₄*(!),¹³⁰ and the *sa-hir* (Akk. *šaharru*) are nets and therefore suitable only to carry unthreshed grain and straw.

105. Once the grain was completely clean, the conical piles of grain were approximately measured by vertically inserting a stick in the center all the way to the bottom. The covered stick length gave the approximate amount of grain in the pile. Fractions of these length could be used to measure shares. Where this system is in use, it is claimed that experienced farmers can estimate the grain amounts with a stick, often the handle of a tool, with a very small margin of error. For a good description of such practices, see Rasmussen 1969:103f. It should be stressed that this preliminary measurement is always followed by a more precise one with gauged containers. The key expression in this line is *gidru-še—ná*, Akk. *ina/ana haṭṭi šunūlu*, documented in lexical (Hh XXIV 175) as well as in literary sources.

6. Commentary

zar-du₈-a-ta zar-sal-la-da, še si-ga gidru-šè ná-a-da, 6 kam-ma-ús-bi ša-ra-da-g[ub], zar-du₈-a-da še zar-sal-la-da, še si-ga gidru-šè ná-a-da ní-g-ku₅
ša-ra-a[b-ak-e]

from the piled up and spread stacks, from the heaped up grain to be laid under the stick, the sixth (brother) stands at your service. From the piled up and spread stacks, from the heaped up grain to be laid under the stick, he pays you a share. *Hendursagga Hymn* 193ff..

gur₇ dub-dub gišgidru ba-an-[ná]

the heaped up pile (of grain) is laid under the stick *Nidaba Hymn* 95.

gišmar gišbad-[rá]-zu, ..., gi-gur-mah-zu gišli-id-ga-zu, še gidru-šè ná-a-zu,
du-ru₁₀dúr-bi ní-g-ság nu-di

your shovels and threshing sleds, ..., your large baskets, your measures, your grain laid under the stick, its place is not disturbed" *TCL* 15 29:9'ff. (Ašnan or *Nidaba Hymn*).

ga-àr di₄-di₄ su₇-šè mu-na-ná ..., ga-àr gal-gal gidru-šè mu-na-ná ...

he laid down for her the small cheeses as in a threshing floor, ..., laid down for her the large cheeses as if for the stick ..." *VAS* 10 123 iii 13'f.¹³¹

This expression already created difficulties for the ancient scribes. The passage Ai. IV i 40, intended to explain it is completely corrupt. Landsberger 1937:173 could not provide an answer, but gave a quite clear discussion of possible solutions, not always heeded by later scholars.¹³² The interpretation proposed here makes, on the one hand, agricultural, administrative, and contextual sense and, on the other hand, casts some light on the Akkadian term *zibbat haṭṭi*. This term appears in two very similar OB sharecropping contracts *VAS* 13 69 and *YOS* 12 376. Both say that in dividing the harvest there will be no (1) *zibbat haṭṭi* "tail of the stick", (2) *kakkussu*, or (3) *šapal bilti* "bottom of the load," but that the tenant will receive a 2/3 share and the owner a 1/3. What the text means to say is that the grain will not be divided in the traditional way. It may be assumed that these words belong to the colloquial language of the farmers, and they may be synonymous with better known legal terms. In the hypothesis that grain shares were divided according to markings on a stick, the name "tail of the stick" for one of the shares is perfectly normal. The third term can well be understood as meaning "bottom of the grain pile."¹³³ The most difficult term is the second. The commentary to Aa VIII/3:18 gives it as a meaning of *kun* "tail" or, as a gloss to *zappu*, "bristles." It seems to be a loanword from Sumerian, but its source is not certain. Significantly, most of the possible solutions have meanings compatible with the hypothesis that it means something like "tip of a stick" or the like. The form *kak-KU*, with a reading *guz* for *KU*, given as the Sumerian form in Ea I 134 and *Erimhuš* VI 97, does not suggest much beyond the presence of *kak* "tip, peg." But other candidates such as *kak-ús* = *paruššu*, *kaparru* "goat," and **kak-ku₅* = *šibaru*, *mupattītu* "pointed tool,"¹³⁴ suggest that a meaning "pointed end of a stick" opposed to *zibbat haṭṭi* can be seriously considered. Note, however, that there is no firm evidence that the three words under discussion designate three completely different things. It is conceivable that the first two could be synonymous, the contracts mentioning alternative designations to cover all eventualities. The matter requires further study. Curiously, there are no overt references to this practice in Ur III texts. The only candidate would appear to be the expression *še giš-è-(a)* "grain coming out from the stick,"

frequently found in texts dealing with the distribution of the crops. The term še giš-è-a has been generally understood as meaning "to winnow" (see Grégoire 1970:128f., with an overview of opinions) and there is some lexical basis for such an interpretation; see references for è = *zarû* in remarks to line 102. However, there seem to be no Ur III texts dealing with giš-è as a concrete operation, giving, e.g., the number of workers employed, or the amount of grain handled. If the expression meant "to winnow," such texts would be expected, as it is the case with še-dé. Furthermore, še giš-è-a grain is, at times, described as in nu-dé (MVN 9 10; 145), i.e., not winnowed. The term giš-è-a qualifies grain in so far it is distributed. Hence the frequent emphasis on the type of measure used (Nikolski 2 267; YOS 4 311; MVN 12 209; 267; 388; etc.). The administrative, not agricultural, nature of the term is also evident in the tablet basket tag BRM 3 180; the basket is said to contain the še giš-è-a of grain of various fields. It is obviously the condition of the grain after the threshing floor operations and just before it is divided up among farmers and other sharecroppers; see, for instance, TSU 48. Thus giš-è either designates the clean grain, ready for sharing, with no concrete reference to a particular operation (grain "issued," but then why the giš?), or, preferably, it means "roughly measured (lit. coming out from) with the stick" and thus the emphasis on specific types of measures would be understandable since a second, regular measurement was needed.

106. The expressions á-u₄-te-en and á-gi₆-ba, frequent in Ur III texts dealing with religious ceremonies, designate the time at which they were performed, "in the evening" and "at night" (Sallaberger 1993:5). The scribe of B₃, disregarding the Sumerian, gives a translation *ad sensum*: "rites of the threshing floor," using Akk. *tarammu/šarammu*, corresponding to Sum. suhirin(SU₇.SUM), Ea III 22a; S^b I 240; Practical Vocabulary Assur 45, "the threshing floor with the piles of grain and straw."

107. The grain should be "released" (búr = *pašāru*), i.e., delivered (and measured) at a time when it is free from the night moisture, but not too dry. This would be the second, more precise measurement that follows the preliminary one with the stick (line 105). See Dalman 1933:149, for the right time to measure the grain: noon, but not afternoon, or evening, taking into account temperature and moisture. The verb búr means here "to release" the grain for transport, storage, and further distribution. Note the additional line that follows 107 in A₃: še búr-ra a-ra-ab-DU.[DU]-e "he/they will carry away the released grain." The baskets used at this stage to carry the grain are significantly called *napšāru*; see remarks to line 104.

108. Ninurta, in contrast to his major role as a warrior god, was considered patron of agriculture,¹³⁵ possibly because of his role in making the mountain waters reach the Mesopotamian plain (*Lugal* 355ff., contrasted with the description of pre-agricultural days in 333ff.). One of his names is "the (divine) Tiller" (uru₄) in the god list An ÷ Anum I 237. His role as Farmer-god is reflected in the literature. *The Fields of Ninurta*, an unpublished composition going as far back as Ur III,¹³⁶ depicts Ninurta in charge of all fields in the Nippur area. Ningirsu, the Girsu god whose powers and attributes are identical with those of Ninurta, is credited with the invention of cultivation and of its tools and implements (JCS 21 283:11ff.), and the plow is his symbol (RA 34 42).¹³⁷

Footnotes

- 1 Collation: possible, but not beyond doubt.
- 2 Translated in Stamm 1968:125 as "längst(?) ist sie gefordert." Akkadian has two homophonous verbs, *erēšu* A "to desire" and B "to till." The common use of the logogram APIN to represent A in personal names is a result of this homophony. A translation of the Sippar name based on the B meaning would seem, at first glance, to give no satisfactory meaning. It must be remembered, however, that meaning B includes the idea of sowing, and thus the name could allude, in a word play, to the efforts of the parents to have a child.
- 3 The expression *dumu engar*, however, remains unusual in administrative texts, see, for instance, *MVN* 3 224:2, 8.
- 4 The *Lugal* passage reads (OB version) [engar(?)]-a-ni a-ša hé-em-mi-in-dab₅ un nam-ta-ab-lá-e [... *eqle]t(?) lizbil m[ā]ta la unaššar* "let his [farmer(?)] prepare the fields (for irrigation), that the population not be diminished." The OB text has in this particular case *dab₅*. The unique *sabālu* has to be considered as a variant of *zabālu*. Note still the passage: e-pa₅ dil-dil-bi [...] šè hé-bi-ib-dib-bé 'let him put in shape all ditches and levees for [...]' N 4164 r. 3' (*Fields of Ninurta*)
- 5 In some cases it is specifically said that ridges and mounds are formed by salts (*MUR*₇/*du*₆ mun). In *HSS* 4/2 27, for instance, "bad fields" (a-ša hul-gig) are said to have 4.6, 2.4, and 23.7% of saline ground.
- 6 See Sauren 1966:72ff. and Maekawa 1982:89 (my interpretation of a-gar/gá-gá differs from Maekawa's since I do not see in it a specific method of irrigation). Pettinato, 1975:284, thinks that the term "gleichzeitig eine Bodenqualität darstellt." This is not sufficiently precise; it designates a temporary condition more than an inherent quality of the soil; see, e.g., *CT* 9 28, where, alongside tracts to be seeded, one is listed which is still under water (a-dé-a) and which in time will receive a regular amount of seed.
- 7 I thus believe, against Grégoire 1970:110 and Steinkeller 1981:119, that in field rental documents a-dé-a designates the time or occasion the rent is paid, or contracted, rather than the purpose. This is a statement about syntax. It does not invalidate the conclusion that a payment was made for use of irrigation waters. The grammatical markings of purpose (VP-dè or NP-šè) are absent in all these texts; see next footnote. One must remember, furthermore, that, in real life, flood time and harvest time naturally coincided.
- 8 The term a-dé is sometimes treated as a verbal phrase (a-dé-dè gin-na *MTBM* 143:7), sometimes as a nominal phrase (a-dé-a-aš/šè gin-na *HLC* 10 403:7; 107 211:17); the suffixless form in *MTBM* 122 can be explained by a haplography. The opposite of a-dé-a is a-ta túm-a "reclaimed from the water" (*CHÉU* 100 i 7f.); note also the contrast between a-dé-a = *edû* "high waters," and a-si/sig-ga = *esigu* "low waters" in lexical (see *PSD* 1/1 a-dé-a A lex.) as well as in literary passages (*CT* 44 32 iii 32'ff.). [Waetzoldt 1990:9ff. has reexamined the question of a-dé-a in great detail, but I do not see the need to change my position. I admit that a field could be intentionally (rather than accidentally) flooded for perfectly correct agronomic reasons, but I do not believe that a-dé-a represents "normal" irrigation. The passages from Ur III letters, can very well be translated "that he let the field be flooded" (*TCS* 1 154; 235), and "PN had done the work there, but he was the one who flooded the field (= let the field be flooded, or, had his field [involuntarily] flooded)" (*TCS* 1 148). To end in an outlandish note: could it be possible that A-dé-a followed by a year name had nothing to do with the yearly flood? could it designate a type of yearly transaction (loan, rental, or the like), cf. eš-dé-a?

- 9 This irrigation machine is called á-lá in Sumerian (cf. CAD D 142b *dilûtu*), *zi-ri/rí-gúm* being a loanword from Semitic; cf. the Ebla passage, above, and Akk. *zarāqu*. TMH 5 146 is possibly a school tablet, where *u₅-la* (so according to ECTJ p. 73) must represent the word elsewhere written á-lá (is TMH 5 146 some sort of "bilingual"?). Laessøe 1953 is an informative survey of irrigation machines (the lexical sources quoted there, however, need updating, compare Laessøe 1953:23 with MSL 6 30). The *zi-ri-gúm* is no doubt the device called *šādūf* in Egypt, and *dālia* in Iraq. The swinging beam, with the bucket hanging from a rope attached to its end, rests either on a forked trunk, or on a crosspiece held by two vertical poles. A Sargonic representation (Laessøe 1953 fig. 3) uses a palm tree trunk for vertical support (hardly, however, "a single pole," as suggested by Laessøe, since palm trees do not produce forked trunks; I assume a simplified view of two upright pieces). There are absolutely no indications, in the periods under discussion, of the existence of hydraulic devices with pulleys, and with a bucket pulled by animals. Van Laere 1980:36 seems to have gone astray in his interpretation of this device.
- 10 It is perhaps an Akkadianism, for which compare the intransitive uses of *našû* quoted CAD N/2 103, 5a.
- 11 A similar text is ITT 5 6856. Compare *Alu* 54 as quoted in the commentary RA 13 29:28f. "If a man encloses a field with a mud wall (IM.AK.A = *pitigtu*) ..., if a man encloses a field with a reed fence (GI.SIG = *kikkišu*) ..." There is relatively abundant information about adobe walls, mostly for gardens but sometimes for fields, in Ur III documents: BIN 5 258; NATN 61; 301; TMH NF 1-2 171 r. 8'; RTC 402:36; ITT 3/2 5060; TCL 5 5674 iii 24, vii 2; OLP 1 40; CTNMC 24:3f.; etc. Several of these texts give sizes and costs. There is much less information on reed fences, see HLC 3 pl. 115 245 iii 5ff. (collated): 135 *guruš gi-dù a-ša* ^dšul-gi-zi-kalam-ma 60 *erín gi-dù!* 80 *erín pa₄! ba!-al!* ... *gi-dù a-ša* ^den-líl-lá; see also, *ninda* 10 *gi-dù* NRVN 253.
- 12 Despite the reconstruction in MSL 7 53, it is most unlikely that Hh IX 323 has anything to do with *kušīru* "profit," restore perhaps *ku-[ša-ri]*. There has obviously been some scribal confusion between (a) *ki-še-er* = *kišdu*, and (b) *ku/ki-še-er* = *kušīru*, and a further confusion with (c) *kušāru* would not be surprising (the Hittite scribes did in fact commit this confusion, see Erimhuš Bogh. B 16'). Besides *ki-še-er* for (b) in UET 3 381, there is now a variant *ki-ši-ir* in Erimhuš I 206 (MSL 17 18). Despite the Sumerian homonymy, *kišdu* cannot be considered a synonym of *kušīru*. For one thing, not one of the passages with the latter word, listed in CAD K 599 s.v., is constructed with the verbs *išû* or *rašû*, obligatory in the idioms with the first. Furthermore, the meaning a) "acquisition, assets" of *kišdu* in CAD K 450b is questionable (a meaning "boundaries" seems more plausible in the two references cited), and in no way can it be considered a sort of "semantic bridge" with "profit."
- 13 And still maintained by the writer in a preliminary draft of this commentary (1987). The interpretation now followed was already proposed by Jacobsen 1957-58:58: "no stray ox trample it for you."
- 14 Note still 10 *kam-ma-am₆* in FAOS 5/2 p. 338:7', with the editor's comment; however, since the text is very fragmentary, it may be part of a serial enumeration.
- 15 Weights courtesy R. L. Zettler, University Museum in Philadelphia. The tools should be examined for wear traces to decide whether they had seen practical use.
- 16 Collected from the lists in MCS 1:47f., after removal of three suspicious entries, without checking the originals. Do not include the many tablets published after MCS 1. In any case, the sample is quite large.
- 17 One text, BM 13132 discussed in 7.2.4.2, mentions copper *gišum[bin?]-gud-ka gá-gá-dè*. Was *umbin-gud* a tool too?
- 18 So far not attested in lexical sources and only once in a broken literary context (Ni 13193 ii 6', unpubl.). The *ka* "mouth, opening" of the furrow is known, see Ai. IV i 26. However, *ka-sal* could equally well be derived from an original **ki-sal*, by vowel harmony. One could, perhaps, compare Aram. *kislā* which, according to von Soden 1966:12, could be the source of NB *kaslu*, "land drained by ditches,"

6. Commentary

according to CAD K 244b s.v. The meaning of the Aramaic word, however, is not completely clear See J. Levy *Neuhebräisches und chaldäisches Wörterbuch* II 367a s.v.: "Furche, Graben," but also "Holzstücke (Pallisaden)".

19 The "Practical Vocabulary" RA 18 65 x 5, from Elam, gives ú-in-ga^{zabar} which sounds like a foreign loanword related to Akk. *ingu*. If there is any relation between the tool under discussion and giš^{kak}-ú-tag-ga "arrow," it remains obscure.

20 The whip, however, is constantly mentioned, in the same texts, among the supplies for wagons.

21 The "tail" (kun) of the whip in Salonen 1968:107, is based on a misreading and must be considered nonexistent.

22 Compare dūg-ak-ak-dè *Edubba* B 63, and dūg-ak-ak = *tespitu* "prayer, blessing" Erimhuš II 171.

23 The giš^{nunuz}-apin = *erimmatu* Hh V 145 is an innovation of the canonical recension and very likely incorrect. The Sumerian must have been created from a misunderstood *erimtu*, from *arāmu* "to cover," erroneously understood as representing *erimmatu* "eggs."

24 References in Sigrist 1981 185; add A 2581 (8.2: 1.1.1), A 5293 (8.2:6.3), A 26328 (8.2:1.1.2), *JCS* 24 167 83, *MVN* 13 5; 7; *ITT* 5 6879.

25 The meanings "rembourrer" and "décorer," proposed by Sigrist 1981 184f., are less convincing.

26 *PSD* B 15a s.v. suggests that ba-an-du₅ and ba-an-du_g-(du_g) are two different words. Since the PS ba-an-du₅ is called here ba-an-du_g, and the diachronic distribution does not favor the separation of forms (PS and Sargonic have ba-an-du₅ with no exception, Ur III and OB have -du_g with only a couple of exceptions) the proposal of *PSD* remains doubtful.

27 Imprecisely translated "closely yoked" in the edition Loeb, p. 123.

28 For textual variants and further discussion, see edition in Civil, forthcoming.

29 Only 144 has the word éš-gàr, 201 and 203 use the formula šu n giš^{APIN}. The area in 201 is uncertain, probably it is 27 plus the half broken amount in line 1.

30 It reads: [x] giš^{apin} gud hi-a a-ša éš-gàr-bi BÙR-g. iku šà MU puzur-d^{mar}-tu dūg-ga-ab giš^{apin} gud hi-a 8 gur šà arar^{ki} i-ág-e "[x] plows and oxen, the area of their assignment is 180 iku (each) yearly(?), when PN is satisfied he will pay in Larsa 8 gur (for) the plows and oxen'. The éš-gàr has to be taken as the value for a single plow, if it refers to the total number of plows, broken on the tablet, its value to confirm the numerals in FI is nil. The rental of working oxen was 3 or 4 gur per annum, according to Code of Hammurabi 242-43 and its forerunner AS 16 4 ii 2'.

31 Note éš-gàr gud KU nu-da[b₅(?)] *NATN* 93:5'.

32 This abbreviation is frequent in Ur III texts where plow animals are said to be alternatively giš, giš-šè, or apin, apin-šè.

33 If one assumes that this value corresponds to 10-furrows/*ninda* work; 2 iku at 8 furrows would take 7.2 days.

34 For the plow in general, see Civil, forthcoming. For the breaking plow in particular, see 7.5.

- 35 In Hh V it is accompanied by the synonyms *gišbar* and *gišbar-gi₄-gi₄*, and followed by *gišbar-sig/sig* (collated) = *ukkušu* "the scratcher," apparently a colloquial term for the implement. See also Ai. IV ii 29.
- 36 For obvious reasons, *gurg* cannot now be considered a gloss to ŠE.KIN = *gur₁₀*, as erroneously proposed in Civil 1973:27.
- 37 The tablet incorrectly has *giš-kár* instead of *giš-ùr*.
- 38 The term *giš-ùr* is at times abbreviated in *giš*, omitting *ùr*.
- 39 Columella RR XI ii 46 gives an area of ca. 10.092 m².
- 40 The totals in the table are less than 150, due to missing or damaged data.
- 41 Exceptionally, NRVN 67 has *giš-šu-ùr-ra*, followed by *giš-gi₄-a*.
- 42 A similar adaptation of the plow to harrowing has been recorded in the Hamadān area.
- 43 5R 52 n. 2 incorrectly has *mu-lu gán-ùr*.
- 44 Cf. *ùr* = *nērebu ša šadi, ša eršetim* Aa IV/4:128f., now completed by BM 36979, courtesy I. L. Finkel.
- 45 Note not only the insistent repetition of *huš*, but also the semantic similarity between *huš* and *šúr*, both = *ezzu* and *šamru*.
- 46 For another possibility, based on *šapāku*, see JNES 43: 294.
- 47 The Ur III subscript *a-ša-ge kin-ak*, with the locative-terminative suffix *-e*, has often been misinterpreted as *gi kin-ak*.
- 48 On this passage, see Powell 1991:161ff., modifying the traditional interpretation.
- 49 Note that most of these texts come from Nippur; many Nippur texts, however, have *al-ak*.
- 50 For the meaning "to dig," see, for instance, *u₄ íd-da al-dù-dè* "when he had to dig the canal" BIN 8 255:10, and TŠA 23 xii 2.
- 51 Note Akk. *qā mahāšu*, corresponding to *gu-ság*, in RA 33 104:29f., something done by the potter.
- 52 Red string marks, marking the plan of a building on a brick foundation, have been found in Uruk, UVB 9 21f.
- 53 In MSL 6 42:16 read *ka-šú*, instead of *KA(!)-bar*.
- 54 See, however, *Emar* 6/2 no. 572 ii 12' *kušim-E-[x]*, after *kušbar-è-dè*.
- 55 It is distinct from the *da-an-ga* or *dam-ga*, Akk. *puqdu*, since both occur in *Lipit-eštar and the Plow*.
- 56 In the sense that to use "ears" a plow has to be symmetrical; there are, of course, uncountable types of symmetrical plows without "ears."

6. Commentary

- 57 The correct interpretation is followed in Civil 1965:119f., who added new sources to the ones used by Landsberger.
- 58 The ratio proposed there is correct for the Girsu texts. In other areas, however, different ratios were in use. Thus *AnOr* 7 339 (collated), for instance, says explicitly that the feed is 5/6 of the seed ([mur-glud-bi 5/6, in line 15). This ratio of 6:5 for seed : feed is confirmed, e.g., by *MVN* 1 86, another Umma text. Other ratios are also attested. The data are amenable to a more detailed examination.
- 59 After collation, and emending line 13 to read 16 (instead of 17) *ninda ús*. Note that here the needed amount of seed is computed from the furrow length, regardless of spacing.
- 60 See remarks on KU-nu = *sanāqu* in Civil 1974-77:40; is KU-nu then to be read /bu(r)un(u)/?
- 61 Note also the equation *gú-gíd* = *kišādu enšu* 'weak neck' Izi F 123.
- 62 Speaking of the inability of Winter to carry out Spring farm work. For a-tur-ra, see here line 52. The term *dub-ba-an* designates the vertical pillars in the cattle pen fences and here presumably the whole fence by metonymy, see Alster 1972:95ff.
- 63 Other arrangements are possible (Haudricourt and Delamarre 1955:306f.), notably the location of the seeder after the sole or between the handles or stilts. Some Sargonic cylinder seals seem to show the seeder in this position, but a closer examination shows that stilts are represented or that it is a deformation due to faulty perspective. All Post-OB representations unambiguously show the seeder in a central position, crossing the sole.
- 64 For modern precision drilling, see Briggs 1978:327. A drill working in a way similar to a Mesopotamian plow can be seen *ibid.* fig. 8.8. It is incapable, however, of performing the fast, intermittent seeding required by the above calculations.
- 65 In Britain, the sowing depth for barley is generally 2.5-3.8 cm (Briggs 1978:298). In the USA, it is given as 2.5-5.0 (Leonard and Martin 1963:504) or 2-6 cm (Rasmusson 1985:468).
- 66 At least one witness has -šè.
- 67 As late as 1940, only 25-30% of the seeds survived in Britain; chemical treatment of seeds and pest control provide now an establishment rate of 50-70% (Briggs 1978:295).
- 68 For the practice of planting vegetables on the sides of (irrigation) furrows and the rationale behind it, see Russel 1957 16f., with note. It does not apply to barley.
- 69 In Izi D i 8' read *it-ku*ku* and in 9' *nu*qu-ru*, by emendation. In the archaic texts Kramer 1956 fig. 6a i' 2"ff. and *OIP* 99 p. 50:125, and no. 269, *suhur* is probably a noun.
- 70 In border or basin irrigation the whole field, surrounded by appropriate low borders or dikes is submerged by the water, see, e.g., Walker and Skogerboe 1987:33ff; Wulf 1966:268f. and fig. 369. In furrow irrigation the water runs only on the furrows. There is no information about the ancient Mesopotamian microstructure of the irrigation system, on how the water reached the soil in the fields themselves, as opposed to the macrostructure of canals and large ditches.
- 71 See discussion of this passage in Steensberg 1957-58. See also Billiard 1928:55ff, Haudricourt and Delamarre 1955:98 and 293, note 8, and Lerche and Steensberg 1983:221.
- 72 Besides drainage following watering, drainage of excessive rain water was at times necessary; e.g., (workers) a ^{IM}šèg-gá a-šà-ta bal-a 'removing rain water from the fields' *SACT* 2 20.

73 Note la.IM.ak ab-sín-ta de₅-de₅-ga in *CHÉU* 81:5. Abbreviations: omission of the verb, e.g., *JMEOS* 12 (1926) 3508:2, shortened to just la in A 5151 (8.2:3.9).

74 1 lag 1 ab-sín gá-e 3-kam-ma-bi-me-en (no vars. given here). The sense of this proverb (or riddle) is elusive. Is the speaker so clumsy that, when he picks earth lumps from furrows, everybody else flees, afraid of getting hit by a clod, and he is left alone? Other interpretations are possible.

75 Apparently, clods were thrown to a canal, if one was close enough. This may be the origin of an expression used in OB documents: "(a side of a field) throws clods into a canal." *CAD* K 402b *kirbānu* 1e, assumes an allusion to erosion in that particular canal section. Veenhof 1973:364-68 considers it a (symbolic) legal formula. In my opinion, the expression has a pure descriptive value: the side of the field is so close to a canal/river that one could throw clods into it. In the stoneless plain, "to hurl a clod" would be the equivalent of a "stone's throw," and similar expressions. To describe erosion, one would expect in Akkadian an expression with *akālu* "to eat" (cf. *kibirša ikkal* CT 39 19:126), similar to Sum. a-e gu₇-a "eaten by the water."

76 With Sumerian synonyms ki-suku₄-dù-a, ki-suku₄-dagal-la, and ki-še-sur-ra. It is not clear whether suku₄ is the reading of KI.GIŠGAL, or of GIŠGAL alone.

77 There are, of course, other factors influencing the rate of infiltration, such as soil texture, type of crops, etc. The interpretation proposed above sounds suspiciously like implying furrow irrigation. However, in basin irrigation, and if there are furrows, the water will stay longer inside the furrows than on the crests, and there is going to be some drainage.

78 Nin-kilim is also mentioned in the incantation fragments VAS 24 49 and 50. There is no evidence, however, that such incantations were ever recited in *sizkur*-rites.

79 Assuming that in the amount seed + feed the relation is fifty-fifty; if only one third is seed, it would be 32.5%.

80 One would expect rather HU.RI (mušen dal) 'bird chaser', but there is a frequent interchange of RI and HU in certain periods.

81 Different from the musen-dù, the bird hunter and the man in charge of domestic fowl. While the RI.HU is always associated with farmers, the fowler (musen-dù) tends to appear associated with fishermen.

82 The first sign is clearly PÉŠ (collation courtesy B. Foster) and since there does not seem to be any bird of this name, I take the text as meaning "mice and birds," the use of the verb dal "to (make) fly" being no objection. The term péš mušen is a binomial expression (Civil 1967:64²) meaning "all the animal pests of the field" (excluding presumably bigger animals such as gazelles and boars).

83 A fact not indicated in many cases in *PSD*, loc.cit., where such writings are transliterated buru₅(NAM!). The difference in signs is most obvious in BM 23631:63ff. (*Or* 54:121, modified) which has buru₅ and bir₅ two lines apart: mu-nu₁₀munù še₁₀ buru₅-ta ma-ra-ra-dal-dal, še-ta še₁₀ še-en-kilim-ta ma-ra-ra-dal-dal, [buru₁₄] an-ta zú bir₅mušen-ra me-e ma-ra-ra-dal-dal "For you, I will chase away the droppings (or filth) of the sparrows from the malt (spread on the roof); for you, I will chase away the droppings of the mice from the grain; for you, I will chase away the beak of the locusts from the grain ears [in the harvest])."

84 For the meaning 'bird', see simply *PSD*, loc. cit., and note already Lambert 1954:29ff. Despite the reconstruction in *MSL* 8/2 125:171f. and the entry *MSL* 8/2 159:14' (from Boghazköy), the equation buru₅ = iššuru does not seem to be part of HAR-ra, only of the syllabary tradition.

6. Commentary

- 85 Another possibility is that there is a case of Ablaut, /bur(u)/ designating the larger animal, /bir/, the smaller.
- 86 One may wonder, however, what a few workers could do against a locust plague. The text DP 621 may be of special interest, nets being used to control locusts invasions. It should not be excluded, furthermore, that the locusts could be caught for food.
- 87 The $\text{BU}\times\text{BU}$ -da in Ai. IV i 50 is probably a graphic corruption, mistranslated, of uga 'raven'.
- 88 One could perhaps take *jarah(h)u* as a West Semitic form derived from *jrh* "month" and thus *lillan* would be the "month-old plant." The reduplication of the third syllable is not without problems. Note the form a-a-ra-hi, after ŠE.LUGAL, in MSL 11 151:256. The HAR-gud to Hh XXIII-XXIV 133 (unpubl.) explanation *kib-ri*: PAP(?) APIN 'edge, outside(?) the furrow' is not clear, but seems compatible with the proposed meaning. The explanation of *lillanu* as *qullupūtu* (ibid. 135) is more puzzling, see remarks to line 72.
- 89 This form implies a compound verb šà—x, compare še šà-a-ab-[x] OBG T III 20 (x = sù?). The restoration -ab-[ba] with a translation 'e. Wasserkorn^{stc}-Art' in AHw 561b *luhanserru* is most probably erroneous. The correctness of the ending -*serru* is open to doubt since most sources in FI and elsewhere have a clear sù (does it come from -/sud¹a/?).
- 90 *Gilgameš and Huwawa* version B i 1; similarly in *Gilgameš and the Bull* iv 18, *Šulgi* C 7 (SRT 14); the verb alone is found in *Šulgi* H 158f. and in *Nanše Hymn* 181. JCS 33:94, with an inexact translation "adorned with a staff." In Ur III ù-luh (Akk. *pir'u*, *hattu*, *tarmiku*, *uluhhu*) is always said of tree branches (e.g., TCL 5 6036 xviii 21; MVN 10 230 iii 23). The same meaning in literary texts: *Tree and Reed* 15; *Lullaby* iii 90; Rs 16:4 (ù-luh-gi₄-rin šu-du₇, '[Ninšubur] adorned with a flowering branch'). In the Enlilbani and Rim-Sin hymns (and ArOr 37 485:85), the (figurative) meaning "royal scepter" predominates, see FAOS 1 19 ad 20. Compare the branches growing from the shoulders of deities on visual representations..
- 91 For instance, it can be red, black, or yellowish (*BaghMitt* 409:11). See Nougayrol 1949:215ff.
- 92 Caused by *Puccinia* sp. which needs as secondary host a plant of the genus *Ornithogalum* (Star of Bethlehem). Such bulbous plants grow in profusion as weeds in the cereal fields all over Iraq; see Guest 1966:71, 79, 103f. There are other possibilities, the infection could, for instance, be "smut," caused by fungus of *Ustilago* sp. See Leonard and Martin 1963:518ff., and Briggs 1978:351ff. for these and other possible diseases.
- 93 See the comments in Postgate 1984:105f.
- 94 Roasting or singeing barley is mentioned in Ur III texts; the process could be applied to other cereals and pulses; see, e.g., CT 32 41; SET 181; etc., even to flour as in *Atiqot* 4 67:6; TUT 126 ii 29; CSTR 710:3.
- 95 ŠE-im sip-hu-um-ma in-[ne-piš?] "the grain was scattered;" gives a good contrast between sowing in furrows and broadcast sowing; it is not impossible that the original meaning of the OB version had nevertheless been "the grain was dehusked," i.e., not harvested, threshed, and winnowed in the proper way.
- 96 CAD H 57b s.v. is now to be completed by the notes of Greenfield 1967:89f. and Sjöberg 1975:164 ad 35.
- 97 In this form the reading of the last sign is uncertain. Is it kul as variant of gūr or gur₁₀? If it is numun, one could think of an allusion to "shattering", when the overripe ears start losing grain.

- 127 This term is frequently mistransliterated as in-dul-dul, in-zar-zar, etc.
- 128 For še—bal, see remarks to line 104.
- 129 *MSL* 5 77f. and *CAD* M/2 265a *mušēlû* B translate bal here as "to winnow." No such meaning is assigned to *elû* or *šūlû* in *CAD* E 114ff. s.v. Landsberger 1937:170 translation "in den Speicher bringen" is closer to the truth.
- 130 See *CAD* A/2 2a *amandēnu*; where the reading si-luh is incorrect, and the references do not belong under this heading.
- 131 Syllabic duplicate *VAS* 2 30 + N 100 (courtesy W.G. Lambert) + BM 80758 (*CT* 58 8): ga-ra de-de-el su-úr-ši mu-na-nu, ga-ra gal-gal su-úr-ši mu-na-nu. The scribe has incorrectly repeated in the second line the su-úr of the first (it could reflect, however, PA = *duru*₆ which underlies the reading (gi)dru).
- 132 Edzard and Wilcke 1976:170 interpret it "(Getreide) zum Drusch auslegen," against Landsberger's observation that this operation took place *after* threshing. Kramer 1963:342 (followed by Salonen 1968:211) translates "laid on sticks," which hardly makes sense. In his later years Landsberger (unpubl. notes) proposed "laid on shelves." This interpretation, reflected in *CAD* Z 102a, 2 a 3 "tail of the shelf," was based solely on a presumed meaning "shelf" for PA in the medicine man's drug inventory *KADP* 36 i 1-ii 33. One can well imagine the drugs, hanging from a stick, if not skewed in it, and carried on the shoulder by the medicine man, rather than kept away on "shelves.". Be that as it may, a translation "shelf" is to be rejected in the case of grain. The 1956 translation "grain which is spread by means of a stick" in *CAD* H 145a, lex. section, does not correspond to any known sensible agricultural operation. The 1980 translation in *CAD* N/1 206b *nālu* is already based on a draft of the present commentary to FI.
- 133 Rather than "arrears of the *biltu*/rent" (*CAD* K 60b *kakkussu* B; Ellis 1976:37).
- 134 This entry is not without problems; see remarks in *MSL* 14 346 ad 120. The entry ⁹ⁱškak-ku = *kakku* Hh VIIA 5 is simply a loanword from Akkadian and should not be taken into consideration.
- 135 A similar duality can be seen in the Roman god Mars.
- 136 The only published texts are *VAS* 10 197, *SEM* 47, *TMH* NF 4 79, Ni 9818 (*ISCT* 1 130), and Ni 9658 (*ISCT* 2 92).
- 137 A MB syncretistic hymn still has a strophe praising Ningirsu as patron of farming (*Or* 36 117:26-34).

7. EXTENDED COMMENTARY

7.1. Of Levees, Ditches, and Dikes (Comments to lines 3 and 8)

7.1.1. EMBANKMENTS OR LEVEES (ég)

7.1.1.1. Introduction

7.1.1.1.1. Previous Opinions

While there is universal agreement on the meaning of $pa_4/pa_5(r)$ "irrigation ditch,"¹ the term $ég$ ² has been up to now translated in conflicting ways. A prevalent opinion, found in many authoritative sources, holds that $ég$ designates a canal or irrigation ditch. Thus, for instance, "Prinzipiell hiess jeder Kanal, der ein Feld umgab, ob klein oder gross, e (*iku*)," according to the article *Kanal(isation)* RIA 5 (1980) 356b. The Pre-Sargonic glossary FAOS 6:94 e I, Salonen 1968:216, Nissen 1975:25, and Renger 1990:32f., to name only a few, all translate "irrigation ditch," "Wassergraben," or the like. On the other hand, Jacobsen 1958:62, and CAD I (1960) 66a *iku* translate "dike;"³ Lafont 1980: 32³, among more recent studies, prefers also "digue."⁴ This opinion was first stated by Thureau-Dangin in a lucid note (1932:-24f.) in which he proposed the meaning "levée de terre." A detailed discussion can be found in Sauren 1966:40ff. He accepts three meanings: (1) "Kanal, in einem früheren Stadium als i_7 ," (2) "ein kleiner Kanal," and (3) "Kanalstamm," "Erdwall." For the first meaning he follows a suggestion of Edzard 1957:112⁵⁶⁷, who noticed that an activity described as $ég \text{ } \acute{id}\text{-an-né-pà-da}$ in-si-ga, in the year Gungunum 15, correlates with $\acute{id}\text{-an-né-pà-da}$ ba-ba-al some fifteen years later, Abisare, year 4. From this Edzard had concluded that si-(g), translated by him "ausschachten," and ba-al "to dig" represented two successive stages in the construction of a canal. In fact, si-(g) clearly means "to pile up," as shown below, and ba-al describes not only the initial digging of a water course but also its subsequent enlarging or deepening. There is thus nothing to recommend meaning 1. Meaning 2, which, according to Sauren, is the meaning found almost without exception in the Ur III texts, is the traditional interpretation which the present discussion will show to be incorrect. Only meaning 3, suggested more than thirty years before by Thureau-Dangin, is in fact acceptable. The writer does not know at present of any passage, administrative or literary, that requires a translation other than "embankment" or "levee."⁵ The field plans with $ég$ (RTC 151 and 158) in no way contradict this position. The stereotyped literary form $e\text{-}pa_5(r)$ "levees and irrigation ditches" is a

binomial expression (see comments to line 66) designating the whole hydraulic system, and stands for the whole lexical set of terms for artificial watercourses.

7.1.1.1.2. *Methodological Considerations*

The assumptions underlying the study of the ancient Southern Mesopotamian canal system and related earth works require reexamination. At the same time, some principles of interpretation need to be explicitly formulated.

(a) Irrigation and Flood Control

Practically all studies take it for granted that the purpose of earth works related to water courses in Ur III administrative texts is agricultural irrigation. A look at the hydraulic regime of the Tigris and Euphrates rivers, however, reveals that the rivers crest between the last weeks of April and the first weeks of May (al-Khashab 1958), coinciding with the beginning of the barley harvest, at a time when not only the crops are not especially in need of water, but the flooding can seriously interfere with harvest work, to say nothing of the danger to towns, and of the possible shifting of watercourses. It can be safely stated that more work was spent in flood control than in water distribution for irrigation. The flooding of the fields when the grain had just been harvested, or was ready for it, could cause the catastrophic destruction of a bountiful harvest. "The flood waters may [rise] as much as 5.4 metres, so that the natural banks, rarely more than 4.5 metres high, have to be raised by continuous artificial embankments over long stretches" (al-Barazi 1961:80, speaking of the Euphrates in the section Ramada-Falluja). The situation must have been the same in the old days. Policies of water management had to deal with flood waters keeping simultaneously in mind irrigation needs, and vice-versa. It would be incorrect to downplay the importance of irrigation, but history shows that flood control has always to be kept in the foreground when interpreting the texts.

(b) Old and New Work

The terms which describe ditch digging and embankment construction, *ba-al*, *sahar si-ga*, and the like, do not make an explicit distinction between tasks being done for the first time and for subsequent enlargements or reconstructions. A well-known parallel is the verb *dù* "to build" in the royal inscriptions where it can mean "to build for the first time," but also "to rebuild." Thus, for example, if the texts mention an embankment 6 m wide and 0.5 m high, there is no way to tell whether those are the dimensions of the whole embankment or whether they are an addition to an already existing embankment several meters high.

(c) Banks and Ditches

Digging a ditch and making an embankment are, up to a point, complementary activities. The earth excavated from the bottom of the ditch will naturally form one or two ridges along the edges. There were instances, however, when an embankment had to be built with materials brought in not from the bottom of the ditch but from elsewhere. The water level in the ditches had to be kept as high as possible in relation to the surface of neighboring fields.

Unless explicitly stated in the texts, the purpose of an earth-moving activity may be ambiguous.

(d) Interpretation

The general rules of text interpretation, whereby some aspects of the subject referred to, no matter how essential, will not be explicitly formulated if they are known to the recipient of the message, self-evident within a given culture, or not relevant to the purpose of the message, naturally have to be applied to the study of ancient water courses and earthworks. The texts of the periods under consideration nowhere indicate that they intend to describe structures. Except in some rare commemorative inscriptions, they normally give only the parameters needed to compute costs, or to assign portions of the work to different persons or entities.⁶ It is thus possible, for instance, that, in certain cases at least, the actual length of an embankment was not the length given in the text but only one-half of it, the ditch having two embankments. That would explain why in some instances a text has the remark á 2-a-bi "its two sides," to indicate that the general understanding that the two sides are listed as a single length does not apply to a particular case.

7.1.1.2. Nature of the Embankments

To pa₄/pa₅-(r) corresponds Akk. *palgu*, and to ég, Akk. *iku*.⁷ The lexical texts are formal in pairing the first with the verb ba-al = *herû* "to dig," the second with si-(g) = *šapāku* "to pile up:" OB lu A 218f, (completed by N 3251):

lú ég si-ga	= ša-pi-ik i-ki-im
lú pa ₅ ba-al	= he-e-ri ¹ pa-a ¹ -[gi-im]

Similarly in Hh II 213ff. Outside lexical lists, note the Akkadian translation *i-ik-ka* ¹*ša-pi-ik pa-la-ak-ka he-ri¹* of ég-zu dím pa₅-zu dím "your levee is raised, your ditch is dug out" UET 6 385 r. 1f, 5f. (collated). In Ur III administrative texts the contrast between si-(g) and ba-al is strictly maintained:

(a) ég (sahar) si-ga:⁸ TCL 5 5676 x 3ff.; SACT 2 2 and 24; NATN 447; MVN 13 666; TENS 92; etc. Note especially: (sahar) bar ég-ga si-ga "to pile up earth (forming) the outer side of the levee" ITT 5 6864 ii 9, iii 5, etc., sahar ... ég-šè i-ib-si "they piled up earth for a levee" SET 318:3, sahar ég FN-a ba-a-si Nikolski 2 165:6ff., and á lú hun-gá ég si-ge-ne/dè BE 3 88:6f., but:

(b) ba-al: JCS 31 17; AnOr 1 79; 7 179; TENS 122; MVN 3 223; 9 107; BM 105425 (MCS 3 85); A 2644; etc. The verb ba-al is relatively frequent, but less so than ég si-(g). Its most frequent object is pa₄-a-da-ga "irrigation ditch," JCS 31:17; MVN 13 362; AnOr 1 79: 7 199; BM 105425 (MCS 3 85); TENS 122; 207; BIN 5 272:140ff.; AOS 32 G 26; I 35; etc., sometimes abbreviated to pa₄, MVN 3 223; 9 107, or to pa₅, NATN 61. "Canal" (íd) is almost as frequent, Bab 8 pl. 6 no. 24; JCS 24:172 iii 6; TENS 121; MVN 10 105; 11 50; Nikolski 2 104; BIN 5 272:209; BRM 3 162; Aegyptus 8 264 11; AOS 32 W 81; etc. Most of these texts, however, are labor accounts with no quantitative information about excavation dimensions.⁹ Exceptions are MVN 10 105 which gives the length and volume/length, and TAD 12 which gives the length and cross section. The first one gives volumes of 2 and 3 sar/ninda (corresponding to

cross sections of 6 and 9 m²), the second cross sections of 0.75 x 0.75, 0.75 x 0.33, and 0.75 x 0.16 m. According to Gelb's collation of the latter, the subscript reads 20 guruš u₄ 1-šè al-dar, not al-ak as expected.¹⁰ The use of pù instead of bûr confirms the impression of a non-standard tablet.

(c) Counterexamples of íd, or pa₄, with si-(g) are apparent and must be understood as referring to the area where the work was done. The same holds for the Isin-Larsa year dates, mentioned above, see some examples in Edzard 1957:112⁵⁶⁷. The Girsu PS texts use the more general verbs dù and ak "to build" in the construction of levees.¹¹ In literary texts, the verb ak is attested for both ditches and levees: ég ì-ak-en pa₅ ì-ak-en *Hoe and Plow* 70; ég ak-a pa₅ ak-a *Tree and Reed* 101; see also dí-m in the passage *UET* 3 385, quoted above. In conclusion, it is obvious that an ég is not dug out but built up. When king Rim-Sin tells how he built the canal Simat-Erra he says that "its two embankments/levees are like mountains" (ég 2-bi hur-sag-gin₇ Rs 27:40 = *UET* 8 86). Note the comparison with the height of a mountain and, at the same time, the existence of *two* ég for a single canal.¹² All this makes no sense if ég means "water course." Ur-Namma's commemorative inscription Un 27 (*UET* 1 284 and dupl.), makes more sense if ég means "embankment" rather than "ditch:" "(Ur-Namma) drained (a-ta ha-mu-na-ta-túm) the marshes of GN, which were really marshes, whose area was 64,800 *iku* (ca. 233 km²). He made their embankments (ég-bi ... hé-na-ak) 4 *dana* and 460 *ninda* long (ca. 44.7 km)." The literary passage ég a bí-in-si pa₅ a bí-in-si "he filled the embankments with water, he filled the ditches with water" *Enki and Ninhursag* 154f. cannot be adduced in favor of the meaning "water course." It is a literary expansion of the binomial term mentioned above. The sense of the text is that the irrigation system was full, and water reached the level of the embankments, not that two kinds of ditches were filled up. Other apparently problematic cases can be easily explained.¹³

7.1.1.3. Lexical data

Geographic lists provide information about the main types of embankments, most of which are also found in administrative texts.

7.1.1.3.1. Canonical HAR-ra

The section dealing with ég has been preserved in Hh XXII Section 9 (*MSL* 11 29f.):¹⁴

3'	ég	<i>i-ku</i>	levee, embankment
4'	ég si-ga	MIN <i>šap-ku</i>	id. raised up
5'	ég dùn-na	MIN <i>pal-GU</i>	id. ...
6'	ég zal-la	<i>pa-áš-ru</i>	id. open(?)
7'	ég sa-dul-la	MIN <i>a-bur-ru</i>	id. of the back
8'	ég dal-ba-an-na	MIN <i>bi-ri-tú</i>	in-between ridge
9'	ég ù-ma	MIN <i>ir-nit-ti</i>	victory embankment
10'	ég íd-da	MIN <i>na-a-ru</i>	river embankment
11'	ég a-šà-ga	MIN <i>eq-li</i>	levees of a field
12'	ég ús-sa-du	MIN <i>i-te-e</i>	neighboring levee
13'	ég gú-[tar]-anše	MIN <i>ú-re-e si-se-e</i>	"donkey's stable" levee
14'	ég su-[m]u-a-bu	ŠU	embankment of Sumuabum
15'	ég su-[mu]-la-èl	ŠU	id. of Sumulael
16'	ég sà-bi-um	ŠU	id. of Sabium

7.1. Levees, Ditches, and Dikes

17'	ég ^{giš} šinig	<i>i-ku</i> ^{giš} <i>bi-nu</i>	levee with tamarisks
18'	ég ^{giš} asál	MIN <i>ša-ar-bat</i>	id. with poplars
19'	ég ^{giš} ma-nu	MIN <i>e-ri</i>	id. with ash-trees
20'	ég gibil	<i>eš-šú</i>	new levee
21'	ég sumun	<i>la-bi-ri</i>	old levee

A comparison of this section with the *pa*₅-section (*MSL* 11 28f., section 8), shows, once more, that *ég* is not a canal. The entries of technical interest are 4'-8'; for 7', see discussion in 7.1.3ff.. Lines 10'-12' describe general locations and 20'-21' general conditions. Lines 14'-16' refer to works attributed to kings (1894-31 B.C.) of the 1st Babylonian dynasty, and may be taken as an indication of the age of compilation of the list (note the absence of Hammurabi, mentioned in the list from Ugarit). Line 9' may refer to some historical tradition. Recall, for instance, the role played by the Kisurra embankment in the wars between Lagaš and Umma. It may be, however, a more recent allusion to a rhetorical formula: Siniddinam builds a canal *ù-ma-mu-ta* "according to my plans/ambitions," or "after my victory" (*Sid* 6:41). Line 13' is obscure and may refer to some physical characteristics of the levee.¹⁵ Finally, lines 17'-19' show that certain types of trees were planted on or alongside the levees. This is confirmed by independent evidence. All are trees which favor riverine areas, see Guest 1966:84. For literary evidence, note, for instance, ^{giš}šinig-ga *sa-sar a nu-nag-mu : bīnu ša ina musarē mē la ištū* "my tamarisk which is not irrigated in the orchard's beds" *4R* 27 1:4f., describing unusually sad conditions; see Guest 1933:98f. for the practice of planting tamarisks near irrigation waters. *DP* 424 mentions *še-du*₁₀-trees planted along ditches (*pa*₅).

7.1.1.3.2. Northwestern Lists

(a) Ugarit

Lexical texts from the NW region (Ugarit and Emar) derive from an OB original similar to the one reflected by the canonical version. They share a propensity to peculiar orthography and show poor understanding of their models. The Ugarit version has been published in *MSL* XII 49 and is reproduced here, with slight improvements.

49	ég ^e i-gu	<i>i-gu</i>
50	ég-[ki-z]i-ga	MIN <i>kis-pu</i>
51	ég []-r ^x	MIN <i>ma-at-qu</i>
52	ég [sa]-dúr-[x]	MIN <i>šu-bu-ri</i>
53	ég [dal-ba-na]-a	MIN <i>be-lu-ti</i>
54	ég [su-mu-a-bi]	MIN < <i>su-mu</i> >- <i>a-bi</i>
55	ég [su-mu-la-èl]	MIN < <i>su-mu</i> >- <i>la-èl</i>
56	ég [ha-am-mu-ra-bi]	MIN < <i>ha-am-mu</i> >- <i>ra-bi</i>
57	ég [^{giš} šinig]-ge	MIN <i>bi-nu</i>
58	ég ^{giš} as[ál]	MIN <i>ša-ar-bat-ti</i>
59	ég [^{giš} ma-nu] ^{er}	MIN <i>e-ri</i>

(end of section)

The only textual problem appears in line 59 where source B (23.82+364) seems to have an undistinct ŠEŠ sign after *ég*; it may represent a variant version.¹⁶ In line 50, the scribe

translates into Akkadian an incorrect writing (e-ki-zi-ga < ég-si-ga) of the Sumerian, understood as ki-si-ga "funerary offering."

(b) Emar

The Emar version (*Emar* 6/4 153:80'ff.) belongs to a different branch of the textual tradition, closer to the OB form than the Ugarit text. The sources are: A = 74198b vi 1ff. (*Emar* 6/2 484f.), with only the Sumerian text, and B = 74115 r. ii' 57'ff. (*Emar* 6/1 286ff.), with only a few signs of the Akkadian translation. The line numbering here corresponds to source A in *Emar* 6/4.

80	ég	[ik-k]u
81	e-si-ga	?
82	ég murub ₄	[ik-k]u ma-al-hu
83	ég sa-dúr-da	[MIN] su-bu-ri
84	ég dal-ba-na	[MIN] bi-ri-ti
85	ég šul-gi	
86	ég šul-hi	
87	ég su-mu-a-bi-um	
89	ég su-mu-la-èl	
90	ég sa-bi-um	
91	ég u ₄ -ki-hur-sag-gá	
92	ég a-ab-ba-hé-gál	
93	ég a-bu-la-la	
94	ég gu-la	
95	ég gibil	
96	ég sumun	
97	ég libir-ra	
98	ég ⁹ⁱ⁵ šinig	
99	ég túl-la	

(end of section)

The alignment of Sumerian and Akkadian is uncertain since they come from different sources. Line 85 refers to embankments attributed to king Šulgi in OB times, see *CT* 2 24:14, and, for Ur III times, *RGTC* 2 290, and curiously unmentioned in earlier geographic lists; the following line 86 may have been added by assonance, or as a variant of line 85. No water course of this name seems to be known. The name in line 91 stands for igi-hur-sag-gá, the name of a canal dug by Sumulael, *RGTC* 3 288, and the embankments of the canal a-ab-ba-hé-gál were built by Sabium, *ibid.* 272. I have no suggestions to offer about the name in line 93.

7.1.1.3.3. *Old Babylonian Forerunners*

The Nippur Forerunner to Hh XXII, edited in *MSL* XI 107, offers:

372	ég sa-dúr-ra	
373	ég gilim-ba	transversal levee
374	ég murub ₄	central embankment
375	ég si-sá	straight levee
376	ég ʾxʾ-[x]	
377	ég ʾdalʾ-ba-na	
378	ég ab-sín-na	furrow ridge

7.1.1.3.4. Discussion

The terms of major technical interest in the preceding enumerations require a brief discussion. All lists agree in *ég dal-ba-na* and *ég sa-dúr-ra*. The first may be found in Ur III in *TENS* 149:2¹⁷ and means a dike that is shared by two watercourses or by two fields; it occurs in Gautier *Dilbat* 30:5. The word is incorrectly written *be-lu-ti* in Ugarit 53. The second term, written in various ways, is discussed in 7.1.4. Between *ég si-ga* and *ég sa-dúr-ra*, the lists insert one or two terms that create a number of problems. Canonical HAR-ra 5'f. has *ég dún-na* = MIN *palGu* and *ég zal-la* = MIN *pašru*. The first entry does not necessarily include the word *palgu* "ditch;" see *tùn* = *pa-la-kum* Aa VIII/1:121, commented as *i-ku pal-ku* (probably the HAR-ra entry) in *MSL* XIV 495:9.¹⁸ Tentatively, one could suggest "divided," or "dividing," embankment, with an exact meaning still to be precised, lacking additional information.¹⁹ Note, however, *dún-gá* = *kālû*, a MB and NB term for "embankment," in Nabnitu IX 245. The second term, *pašru* in the canonical text, is equally obscure, perhaps "not in use" or "leaky." This entry seem to have already created difficulties for the ancient scribes. Ugarit and Emar have *ma-at-qu* and *ma-al-hu*, respectively. To complicate things, it is not clear to which Sumerian entry these words correspond, since the first subcolumn is half-broken in Ugarit, and Sumerian and Akkadian come from different sources in Emar. The first translation could be emended to *ba!-at-qu* "broken," "damaged," the second, *ma-al-hu*, could perhaps be a corruption of *palk/qu*. Note, furthermore, that *ég gilim-ba*, Nippur Forerunner 373, would in all likelihood be translated by *parku* "crosswise built levee," and that is far from certain that *malhu* translates *ég murub₄*. This last term is attested in the administrative text *MVN* 10 231 i 11ff., discussed in 7.1.2.3.a. The difference between *gilim-ba* and *murub₄* is thus not clear.

7.1.1.4. Construction and Physical Dimensions

7.1.1.4.1. Types of work

Two main types of work are involved in building a levee: (a) *ég si-ga*, and (b) *ég-e* (or *ég-ég*) *ú-sag₁₁-e/a*. The first, discussed here, is part of a group of activities generically known as *kin-sahar* which involve earth moving. Besides *ég si-ga*, this includes *sahar si-ga* "to pile up earth" (*UCP* 9/2/1 176:8; *Nakahara* 38; *TENS* 144; *Or* 47-49 349; *AnOr* 1 144; *Nikolski* 2 139; and often), *sahar zi-ga* "to remove earth" (*Or* 47-49 230; *TENS* 276; *Or* 47-49 230), *sahar šu-ti-a* "to collect earth" (*Nikolski* 2 136; *SACT* 2 3; 4; 5; 9; *Nebraska* 68:26ff.; *MVN* 1 88:8), *sahar šu-bal-a* "to transport earth" (*BM* 111800 [*MCS* 3 89]); canal work is also included in this category of work: *ba-al-la* "to dig" (*TENS* 4; *BIN* 5 272:140ff.; *MVN* 10 105; *AnOr* 1 79; 7 199; and often), and *šu/šú-luh-ak* "to clean (the bed of a water course)" (*HUCA* 29 129; *AnOr* 7 240).²⁰ The workers habitually assigned to this type of works are known as *guruš šà-sahar* "earth workers," although this expression, like similar constructions with *šà* like *šà-gud* or *šà-mar-sa*, are mostly used when such workers are engaged in activities outside their normal work. The second activity, *ú-sag₁₁*, is discussed in detail in 7.1.2. Both types of work are performed simultaneously, most of the time.

7.1.1.4.2. Physical dimensions

The discussion will focus on those texts that explicitly mention *ég si-ga*. Unless stated in the document, it is often difficult to decide whether the work is the building of levees or the digging of a ditch. It is not always clear, furthermore, if the *ú-sag₁₁*-work is included or not. The Ur III texts use two basic formulations for the dimensions of excavations and embankments: (a) gives the cross section specifying width and height, and (b) gives volume per unit of length. In the following, *l* = length (*gíd*), *w* = width (*dagal*), *h* = height (*sukud*) or depth (*bùr*), *v* = volume (*sahar*), *r* = volume per unit of length ($r = v/l$), and *s* = area of the cross section ($s = hw$). The formulas are:

- (a) *l gíd-(bi) w dagal-(bi) h bùr/sukud-(bi) a-šà/sahar-bi/kin-bi v* "the length is *l*, the width is *w*, the height is *h*, the volume/work is *v*."
- (b) *l gíd 1 ninda-(ba) r-ta sahar-bi v* "the length is *l*, the volume per *ninda* (of length) is *r*, the (total) volume is *v*."

Variations of these formulas will be found in the descriptions of individual texts. On the tablets the linear dimensions are given in *ninda* or *kùš* (1 *ninda* = 12 *kùš* = ca. 6 m), the volumes in *sar* (1 *sar* = 1 *ninda*² × 1 *kùš* = 144 *kùš*³ = ca. 18 m³), or its fraction *gín* (1 *gín* = 1/60 *sar* = 0.3 m³). The volumes are computed as follows:

- (1.1) $v \text{ (sar)} = l \text{ (ninda)} \times wh \text{ (sar)}$
or, if *w* and *h* are given in *kuš*, a very frequent case:
(1.2) $v \text{ (sar)} = l \text{ (ninda)} \times (wh \text{ (kuš)}/144)$

When *r* is given, in the case of formula *b*, the cross section *s* is:

- (2.1) $s \text{ (kuš}^2\text{)} = r \text{ (kuš}^3\text{)}/12$
or, if in *sar*:
(2.2) $s \text{ (sar)} = r \text{ (kuš}^3\text{)}/1728$

In the following tables, *l* is generally given in *ninda*, *w* and *h* in *kuš* (abbreviated *k*), *v* and *r* in *sar*. In certain cases, duly noted, all parameters have been reduced to *kuš* to improve intelligibility. Fractions are given in *decimal* form.

7.1.1.5.3. Texts.

- (a) MVN 10 231 = RA 73 31 no. 31.

Amar-Suen 2, Umma. Formula: *l gíd-(bi) w dagal-(bi) h bùr-(bi) sahar-bi v (ú-sag₁₁ 1-bi v_u, in 2). Totals mostly broken. The text has been studied by Lafont 1980:29ff. (see table 7.1.1)*

(1) "erecting levees of the ditch *pa₄-síg-an-na* (perhaps a writing for *pa₄-sig*); there are five *nag-ku₅*'s (along the levees), 2 1/3 *sar* of earth have been piled up for them (in addition to the 33 *sar* of the excavation forming the embankments). The levees are ca. 792 m long with a section of 1.5 × 0.5 m. It is possible, as suggested in 7.1.1.1.2 *d*, that here and in other similar

7.1. Levees, Ditches, and Dikes

cases the effective length of the water course protected by the levees was $792/2 = 396$ m., i.e., that the length given by the tablet is not the one of the ditch but that of the two lateral levees.

(2) In this entry, the earth volume and the volume of reinforcing reeds are given separately, see 7.1.2.3 b. "Piling up earth for a blocking (úš-a) 'middle embankment' (ég murub₄), 17 sar of

Table 7.1. 1. MVN 10 231

	l	w	h	v	operations
1	132.0	3	1.0	33.00	ég si-ga pa ₄ -sig-an-na nag-ku ₅ 5-àm 2 1/3 sar sahar ba-an-si ég nin-a
2	23.0	6	1.0	11.50	ú-sag ₁₁ -a-bi 3 5/6 sar ég murub ₄ úš-a sahar si-ga nag-ku ₅ úš ég murub ₄ .ka 3-àm 17 sar sahar ba-an-si pa ₄ 1-àm
3	33.0	2	0.5	2.75	pa ₄ 1-àm
4	50.0	1	0.5	2.83	pa ₄ -a-da-ga b[a]-a[l?-l]a?
5	35.0 23.5 32.0	3 2 6	1.0 1.0 0.5	8.75 3.92 8.00	ég si-ga a-šà igi-é-dur ₅
6	65.0	2	1.0	10.83	nag-ku ₅ 9-àm 15 sar sahar ba-a[n-si] gú id ₁ -sum-ma a-šà AB-gibil-la nag-ku ₅ 5-àm 7 sar sahar ba-an-si a-šà é-dur ₅ -ba-zi nag-ku ₅ 5-àm 6.5 sar sahar ba-an-si a-šà dal-ba-na

earth have been piled up for the three blocked up nag-ku₅'s in this embankment; (all this belongs to) one irrigation ditch." The murub₄ embankment is mentioned in the lexical lists, see 7.1.1.4. Given its length of ca. 138 m, it cannot be a simple transversal levee working as a dam, and the physical structure remains unclear. Perhaps the first part of the entry deals with a regular levee, and the ég murub₄ is an additional structure. The term a úš-a "to dam up water" is well attested in lexical sources (Akk. *sekēru ša mē*) and, often misunderstood, in Ur III texts. The correct explanation, with previous literature, is given by Lafont 1980:38f. Just to quote a literary reference: a ù-ba-ni-in-è nu-mu-e-da-an-úš-en "when the waters overflow, you cannot dam them up" *Hoe and Plow* 11. See also the letter 8.1.4:12..

(3-4) These entries illustrate the ambiguity of many of the texts under discussion. Does the notation "one ditch" in 3 refer to excavating one ditch, or does it mean that levees were erected that belong to a single ditch? If the restoration ba-al-la in 4 is correct, it could mean that 3 still refers to ég si-ga and the type of work has changed between 3 and 4. This seems to be confirmed by ég si-ga at the end of 5, indicating that the nature of the task has, once more, changed.

(5) Construction of levees of a field, in three sections.

(6) This entry describes the construction of an embankment ca. 390 m long and of three groups of nag-ku₅'s, in three different locations. For the nag-ku₅ reservoirs, see 7.1.4.5.

(b) AnOr 1 33.

Šulgi 45, Umma. One-column tablet, not collated. Minor corrections are needed in lines 7 (26 instead of 36), 10 (2 instead of 1), and 24 (12 instead of 22). After line 25 the tablet is damaged and its text has not been used. Formula: *l gíd w dagal h búr kin-bi v* (in *sar*). The work is classified as *ég* followed by a toponym (a field name without *a-ša*). Uses the notation *nu-tuku*. The lengths of the levees have been grouped and arranged according to cross section (abbreviated as *x-section* in the tables).

Table 7.1.2. AnOr 1 33

x-section	length	frequency	ratio w/h
12 x 1	130	1560	12:1
12 x 2	17	408	6:1
12 x 3	8	288	4:1
12 x 4	3	144	3:1
18 x 5	3.5	315	3.6:1
Totals	161.5	2715	

The average cross section is $2715/161.5 = 16.8 \text{ k}^2$ (ca. 4.2 m^2) with a minimum of $6 \times 0.5 \text{ m}$ and a maximum of $9 \times 2.5 \text{ m}$.

(c) RTC 412.

Amar-Suen 3, Girsu. Tablet with two columns on the obverse and three columns on the reverse, with a large portion of the upper right corner missing. Only the entries preserved or safely restorable are given here. Formula: *l gíd w dagal h sukur a-ša v*. Subscript *ég a-ša FN*. Topographic indications of the type *á GN* '(on) the side of GN.' Uses the notation *nu-tuku* and mentions nag-ku₅.

Table 7.1.3. RTC 412

x-section	length	frequency	ratio w/h
1 x 1	220	220	1:1
1 x 1.5	180	180	0.33:1
1.5 x 2	60	180	0.75:1
1.5 x 2.5	120	950	0.6:1
2 x 3	280	1680	0.6:1
2.5 x 3.5	430	3762.5	0.71:1
2.5 x 4	20	200	0.62:1
2.5 x 5	110	1375	0.5:1
totals	1420	8547.5	

The average cross section is $8547.5/1420 = 6 \text{ k}^2$ (ca. 1.5 m^2), with a minimum of $0.5 \times 0.5 \text{ m}$, and a maximum of $1.25 \times 2.5 \text{ m}$.

(d) Or 47-49 511.

Date broken or not present, Umma. One-column tablet, collated by H. Waetzoldt, *OrAn* 17 56. Mixed Formula : *l* gíd *l* ninda-ba ú-sahar-ta *r*-ta sahar-bi *v* (for ég and a-ga-mu-um); and *l* gíd *w* dagal *h* <bùr> sahar-bi *v* (for nag-ku₅ and gú íd). The data for the latter are not given here, but are used in discussions elsewhere. In the table, x-section designates the cross section, in k², inferred from *r* (volume per unit of length). Note that *v* in this text includes the volume of reinforcing reeds. The cross sections are ca. 4.5 and 3 m² (table 7.1.4).

Table 7.1.4. Or 47-49 511

x-section	length	structure
18	225	a-ga-mu-um
18	600	ég dúr a-šà-ga-ka
12	285	ég a-gàr gibil-ka
18	280	ég a-gàr gu-la
total	1390	

(e) SET 318.

Undated. One-column tablet with no toponyms, personal names, or a real subscript (occasional jottings? exercise?).²¹ Unique Formula: *l* ús *l* ninda *v*/*l* sahar-ta ég-šè ì-ib-si sahar-bi *v* "a long side of *l* (*ninda*), for each *ninda* 2/3 *sar* of earth have been piled up as a levee; the volume is *v sar*." The amount of work per man/day is a length of 3 *kuš* of a levee with a cross section of 8 k² (2 m²). Follows an entry with ú-sag₁₁ for which see 7.1.2.3 c.

(f) A 5469 (8.2:2.12)

Date broken, probably from Umma. One-column tablet. Useless traces of subscript. Formula: *l* gíd *r*-ta kin-bi *v*. First line: ég da ki-su₇-ta "levee from the side of the threshing floor." Uses the notation nu-tuku, and the sections thus labeled have been included in the table below. The portions with the same cross section have not been grouped together, as in the preceding texts, since here the sequence of values provides an instructive picture of the longitudinal profile of a levee. For the same reason, sections where no work has been done, labeled nu-tuku on the tablet, are also included in the table. The section increases progressively until the levee reaches a point defined as gú-šè "up to the edge" (the bank of a canal?) and then decreases to zero. See table 7.1.5. The average cross section is 1820/416 = 4.4 k² (ca. 1.1 m²) and varies from zero to 3 m².

(g) BM 21335 (CT 3 35ff.).

Undated, Girsu. Five-column tablet with no other subscript than topographical indications. Formula: *l* gíd *r* sar-ta, with partial totals, according to topographic features and personnel. Of 12 totals on the tablet, only 2 are correct, 8 are too low and 2 too high. The tablet gives the impression of being a surveyor's field notes to provide an estimate of the necessary work and its assignation to various supervisors and personnel. The type of work is not specified, but it is said to be on both sides²² of the canal nina^{ki}-šè-gin, in the section between Lagaš and Nina. It is thus most likely that levee work is intended. The tablet uses the notations KA-a-DU

Table 7.1.5. A 5469

x-section	length	frequency	remarks
0	10	0	nu-tuku
2	50	100	
3	30	90	
4	30	120	
6	40	240	
4	24	96	
6	66	396	
8	20	160	
4	78	312	
12	15	180	
4	10	40	gú-šè
3	20	60	
2	13	26	
0	10	0	
totals	416	1820	

(see 7.1.1.4.4.1) and nu-ak. It has been studied, for its topographic information, by Carroué 1986: 25ff.²³ The table gives only the lengths for which the earth amount is given. Segments with the same cross section have been grouped together.

Table 7.1.6. BM 21335

x-section	length	frequency
1	124	124
2	23	46
4	225	900
6	1672.5	10035
8	267.5	2140
12	379.5	4554
16	2.5	40
18	35	630
24	20	480
36	12	432
totals	2761.0	19381

The average cross section is $19381/2761 = 7 \text{ k}^2$, ca. 1.75 m^2 , and varies between 9 and 0.25 m^2 .

(h) BM 14616 (unpubl., from photo).²⁴

Undated, Girsu. A three-column tablet. Formula: *l gíd a-šà-bi v*. Starts with *ka íd-da-ta* and the end reads *kin-dù-a íd bí-za-gi-li-li á gú-edin-na-ka-bi*. It is somewhat similar to text *g*, and like it has no surveyor's names. It has 48 entries with water course segments, assigned to various persons, and two totals, one 17,136 m long, labeled *kin KAS₄*, the other 21,494 m long labeled *kin ensí*. The nature of the work is a generic, somewhat archaic, *kin-dù-a*. Since it is said to be performed "on the Guedinna's side," it is most likely levee work. The cross sections can be obtained by the formula $(v/l)/12$, and their average is 3.11 m^2 . The tablet is full of erasures, and the *r*-values, if expressed, would have often been fractions of the type avoided by the scribes. All this seems to indicate that, like text *g*, BM 14616 is a preliminary survey for work assignment.

(i) Other texts.

(1) MVN 6 139.

The subscript and totals are not restorable, except for ⁹¹⁵kiri₆ ti-[ra-áš], (see RGTC 2 198). The work, which remains unspecified, is thus performed in an orchard or palm garden. Formula: *l gíd w dagal h búr a-ša v*. In 6 out of 7 entries *h* > *w*, with an aspect *w:h* from 0.52:1 to 0.75:1; the average cross section is 1.67 m².

(2) SACT 2 140.

For the first two entries on the tablet, see 7.1.4.4.1 *a*. The rest, unspecified work, has the Formula *l gíd r-ta sahar-bi v* in the third entry, and *l gíd w dagal h búr [sahar-b]i v* in the others. The tablet is damaged, but most of the broken dimensions can be restored from the preserved part.²⁵ The preserved cross sections are 1, 1.5, and 3.5 m².

(3) BM 17759 (CT 7 42).

Despite its mention of the canal *bí-za-gi/zi-li-li* (as in texts *g* and *h*; see RGTC 2 280), and other canals, this is not a record of canal work but of the construction of an extremely long combination of 4,080 m of mud walls (*im-du_g-a*) and 13,680 m of reed fences (*gi-dù-a*, Akk. *kikkišu*); see commentary to line 6.

7.1.2. REINFORCEMENT OF THE LEVEES (*ú-sag₁₁*).

7.1.2.1. The work and its designation.

Besides the work of piling up earth (*ég si-ga*), examined in 7.1.1.2, the building of a levee or dike often, if not always, required a second type of work called *ég-ég* (or *ég-e*) *ú-sag₁₁-e/a* (SET 318 and NATN 447), which could be abbreviated to *ú-sag₁₁* (MVN 9 107). Mentions of this activity alone, however, are rare, and one typically finds it associated with KIN-sahar "earth work" (see 7.1.2.1) in the formulas KIN *ú sahar-ba* (e.g., BRM 3 121; TIM 6 1; TENS 28; MVN 10 102; and often) and *sahar ú sag₁₁* (e.g., ITT 5 6564), or simply *ú sahar* (Or 47-49 511). Note also: *n sar KIN ú-bi i-gar* (BRM 3 120). In *ú-sag₁₁*, *ú* designates assorted vegetable matter, mostly reeds and rushes, mixed with sand, and used to reinforce the levees or banks against the mounting waters (it was the ancient Mesopotamian equivalent of sandbagging). The amount of reeds, in volume, was from one-third to one-fifth of the earth volume. Although it is reasonable to assume that reeds were used in the form of fascines, there is little direct evidence for this in water works texts.²⁶ Significantly, a general account of earth moving (*níg-kas₇ sahar zi-ga*, TIM 6 1) includes very large amounts of reed bundles. Reeds are said to be used in *a-è-a* "overflowing or breaks in levees" (TCL 5 6036 vii 31, 33; UDU 54; 59; UCP 9/1 2 92), *a-úš-a* "damming up water" (CHÉU 37), *ka id-da* "canal intake" (UDU 53; TÉL 272; Nikolski 2 111), *nag-ku₅* "overflow basins" (TCL 5 5674 v 15; 6036 vii 35; MM 608 i' 4'f.), etc. In Boson *Tavolette* 369 reeds seem to be used for an embankment (*ég*), but the text, as published, is uncertain. More explicit passages are *gi-zi-bi nag-ku₅ id sal₄-la^{ki} ba-an-ú-ús* "these reeds were applied to the basin of the canal of (the town of) Sala" MM 608 i' 4'f. (unpubl.), and *sa-gi nag-*

ku₅ GN₁ ù nag-ku₅ GN₂ ba-an-ús Or 47-49 346, which provide the verb describing the operation of reinforcing the sides of a basin. In addition to reeds, rushes (úNUMÚN)²⁷ were also used (BM 105429 [MCS 4 10]; BIN 5 272:183ff.; AnOr 7 184; etc.). The term ú-sag₁₁ has in general been neglected in Ur III studies (see, e.g., Sauren 1966:79⁶³; "Arbeit im Wasser und mit Erde"); but among the explanations proposed by Lafont 1980:35, one finds the correct one.

7.1.2.2. Lexical data

The term ú-sag₁₁ presents several lexical problems. The basic starting point is Hh IX 337ff., presented here in an updated form.²⁸ The sources are H = N 1455, of MB date; M = W 22729/4 (SpTU 2 51); S₈ = BM 93086 (CT 14 49); S₂₈ = BM 54666 (unpubl.).

			H	M	S ₈	S ₂₈
337	gi.ú-KIN	šur[u]	+	+	+	+
338	gi.ú-KIN-tur	kiš[ttu]	+		+	+
339	gi.*ú-KIN-tur	him[matu]	-		+	-
340	gi.ur ₄ -ur ₄	MIN	+		+	+
341	gi.šu-ur ₄ -ur ₄	MIN	+		+	+
342	gi.[x]l-[x]-ur ₄	MIN	-		+	x

Notes. 337 (1). H: ú-; MS₈S₂₈ šu-. 338 (1). Same variants. 339 (1) S₈: šu-, emended from the preceding lines in H. 340 (2). H: maš-; S₈ MIN. 341 (1). H: ad-ur₄-ur₄; S₈S₂₈: šu-ur₄-ur₄.

The Emar version has: [gi].šu-uš-KIN = šu-ru, [gi].šu-uš-KIN-tur = hi-im-m[a-tu] (Emar 6/4 580:9'f.). The commentary HAR-gud to Hh IX 31 gives the explanation gi.šu-KIN = šūru = himmatu. The essential of the Hh IX passage is repeated in Erimhuš II 142ff., but with the first sign broken away, and in Köcher KADP 41:3'-6' (= MSL 10 89, text U) in the form ú-UR₄.²⁹ The writing ú-sag₁₁ is to be preferred to šu-sag₁₁ since it is attested in the MB source of Hh and in the proverb gi.ú-sag₁₁ ab-il-il-e-en : šū[ra] azab[il] "I carry šūru reeds" BWL 242:28f. More importantly, it is the form in use in Ur III. The reasons for the change from ú to šu are unknown, perhaps it is due to the influence of the following šu-ur₄ or, even to the influence of the Akkadian translation.³⁰ The meaning of Akk. šūru is well established. It designates reeds cut (nakāsu PBS 1/2 28:2), and piled up to reinforce the levees (ana iki nāri tabāku ibid.; ana iki dunnuni nakāmu YOS 2 130:15) or barrages (ana pan muballīṭatim inaddu ARM 14 13:28). While FI 8 uses ú-sag₁₁—zé to express the cutting of the plants (reeds, etc.), there is no explicit mention of this operation in Ur III texts. In all likelihood, it is subsumed under the ubiquitous terms for reed cutting: gi—ku₅ and gi—zé.

7.1.2.3. Texts

A few texts give quantitative information about the reeds used to reinforce water works.

(a) NATN 747

The lower third of a single column Nippur tablet with the formula: l gíd w dagal h sukud r-ta sahar-bi v_s ú-bi v_u, where v_s is the volume of earth and v_u the volume of reeds. The fully preserved entries are as follows (all values reduced to kuš, table 7.1.7).

Table 7.1.7. NATN 747

l	w	h	r	v_s	v_u
444	6	1.5	90	2664	*666
720	5	1	72	3600	720
180	6	2	96	1080	360

The factor r represents the total volume for unit of length: $r = 12(v_s + v_u)/l$. The scribe's computation of the partial volumes of earth and reed matting is most unusual: $v_s = lw$ and $v_u = lh$, instead of the expected $v = lwh$.³¹ This makes sense only if w and h are interpreted as one of the sides of a cross section whose other dimension is one. It is not clear whether this was the scribe's intention or whether he is following an incorrect procedure, i.e., he adds w and h instead of multiplying them. Only the discovery of more texts of a similar nature can provide the answer. The ratio v_s/v_u is in the three cases above: 4, 5, and 3, respectively. In other words, the volume of reeds applied to the levees was from one-third to one-fifth of their earth volume.

(b) MVN 10 231 i 8ff. (see description of the tablet in 7.1.1.5.3 a).

Only one entry in this tablet gives the volumes of earth and reeds separately; there are no other cases of $\acute{u}\text{-sag}_{11}$ in the rest of the tablet. Formula: $l \text{ gíd } w \text{ dagal } h \text{ bùr sahar-bi } v_s \text{ ú-sag}_{11}\text{-a-bi } v_u$. The values, reduced to *kuš*, are: $l = 276$, $w = 6$, $h = 1$, $v_s = 1656$, $v_u = 552$. Here, in contrast to text *a*: $v_s = lwh$, as expected. The value of v_u corresponds to a cross section of $552/276 = 2 \text{ k}^2$. The v_s/v_u ratio is $1656/552 = 3$, within the range given by text *a*. No other texts give the separate volumes of earth and reeds. The following text, however, gives information about the cost of $\acute{u}\text{-sag}_{11}$ -work.

(c) SET 318 (see description of the tablet in 7.1.1.5.3 e).

After giving the volume and required labor for an embankment 65 *ninda* long, the text reads: 65 *ninda* $\acute{u}s \acute{e}g\text{-e } \acute{u}\text{-sag}_{11}\text{-e guruš-e } u_4 \text{ 1-šè 1 ninda } \acute{u}s \text{ in-ak á guruš-bi } 65 u_4 \text{ 1-šè}$ "reeds put on a levee of a length of 65 *ninda*, a workman made 1 *ninda* of length per day; the workmen's wages are 65 man-days." I assume, given that the length is the same, that the reeds are applied to the levee made in the preceding entry. That levee had a r value of 96 k^3 , corresponding to a cross section of 8 k^2 , and the cost was computed from the customary daily assignment of 10 *gin* per worker. If one assumes that, as suggested by the previous texts, the cross section of the reed matting is one-third of that of the earth levee, the amount of reed work would be $12 \times 8/3 \text{ k}$ per *ninda*, approx. $13 \frac{1}{3} \text{ gin}$, per worker.

(d) ITT 5 6864

Amar-Suen 8, Girsu. A four-column tablet, extensively damaged on its right and left sides, which describes different types of operations (e.g., $[pa_4 \text{ ba}]\text{-al-la in i 1-5}$ and $nag\text{-ku}_5$ construction in vii 11ff.) but deals mostly with $\acute{u}\text{-sag}_{11}$ alone (an exception is *sahar ú-sag₁₁* in ii 1). It has topographic indications, and uses the terms *bar*, *bar ég-ga si-ga*, and, apparently, an otherwise unattested term *bar-HI-ab in v 21'*. Formula: $l \text{ gíd } w \text{ dagal } h \text{ sukud } \acute{u}\text{-sag}_{11} v_b \text{ bar a-}$

šà v , where v_b designates the volumes qualified of bar on the tablet. Only sufficiently complete entries are given here.

Table 7.1.8. ITT 5 6864

	l	w	h	v_b	v	lwh	
1	72	2	2	120	*264	288	ii 4ff.
2	30	3	2.5	312	537	225	iii 12ff.
3	02	4	3	2044.8	*3412.8	1224	iii 15ff.
4	60	2	2.5	648	948	300	v 9ff.
5	24	2.5	2.6	792	792	160	v 17ff.
6	60	3	3	1164	1704	540	vi 4ff.

The total volume is $v = lwh + v_b$, that is, the volume required by the given linear dimensions plus an amount qualified of bar.³² The bar "outer part," "outside" amount must probably be understood as supplementary reeds added to the usual amount, and as an indication that the fascines were regularly applied only to the part of the levee facing the water and only occasionally, as in the present text, to the outer part. It is significant that this same text is the only one to use the phrase (earth) bar é-ga si-ga "piled up on the outer part of the levee." Note, finally, the expression ú-sag₁₁ á 2-a-ba "on both sides" in vii 8'.

(e) Other Texts

The rest of administrative texts give only the total volume with no linear dimensions of the combined work, building ditches and dikes and applying the fascines, under the name KIN ú sahar-ba; see *Nikolski* 2 212; 213; *TENS* 28; 56; 207; *BRM* 3 121; *AnOr* 7 263; *MVN* 10 202 iv 25ff.; *TUT* 9; *BIN* 5 272:173; etc. Occasionally, the tablets make explicit the amount of work assigned to each worker: 10 *gin* (ca. 3 m³) in *BIN* 5 272:173 and *TENS* 207, 7.5 *gin* (ca. 2.25 m³) in *TENS* 78 and 56); or the wages: 6 *sila* of barley in *AnOr* 7 263, and 6 or 5 *sila* in *TIM* 6 1 i 10, 12). In *MVN* 9 107:6f., the total wages for digging ditches (pa₄ ba-al) are double the wages of laying down the fascines (ú-sag₁₁).

7.1.2.4. Depth (bùr) versus Height (sukud)

In general, the work reports that mention only ú-sag₁₁ use *sukud* to indicate the vertical dimensions. If sahar is mentioned next to ú, or if sahar alone is used, they use *bùr*. An exception may be *RTC* 412 which uses *sukud*; there, however, the inclusion of ú-work is not explicitly excluded. Elsewhere, and by way of examples, *sukud* is said of house walls (iz-zi) in *NRVN* 265, of a wall of bricks and adobe in *RTC* 413, and of an adobe wall (im-du₈-a) of a garden in *NATN* 61. The use of pú for "depth" in *TAD* 12, describing the digging of a ditch, is exceptional. Before Ur III, *sukud* seems the general term for both "height" and "depth;" besides the PS Girsu texts, see, e.g., the Sargonic tablets *ITT* 2 2873; 3 4505; 4656; note, however, *ITT* 2 3150 with *bùr*. [For a more complete discussion, see Waetzoldt 1990:16f.]

7.1.3. DIKES AT THE "END OF THE FIELD" (ég sa-dúr-ra).

7.1.3.1. Previous interpretations

Oppenheim 1948:40, explained ég sa-dúr-ra as "some work done on ditches (e) with a certain type of baskets or reed bundles (sa)," and his interpretation has been generally accepted up to now; see, e.g., Goetze 1962:13, Sauren 1966:77, Salonen 1968:420f., *TENS* p. 57). There seem to be no dissenting opinions.³³ This interpretation, however, based solely on one of the meanings of sa, is untenable and not supported by lexical and textual evidence. The reinforcing of levees with reed bundles was designated by ú-sag₁, as shown in 7.1.2.

7.1.3.2. Definition

To understand the meaning of sa-dúr, one must remember the shape and location of Mesopotamian fields plots. The plots were narrow, sometimes extremely narrow,³⁴ long strips of land with the upper end (sag an-na or sag 1-kam) facing a water course. The orientation of the field was chosen in such a way that the water runoff would be parallel to the long sides (ús) of the plots. This arrangement gave the cultivator of each plot direct access to and control of the water. The lower end (sag a-ki-ta or sag 2-kam) was the part of the field more subject to flooding, on the one hand, and where the water had to be stopped when the land was irrigated, on the other. The low-lying area next to this end of the field was termed sa-dúr. Its dikes (ég sa-dúr-ra) were naturally of great importance and can be defined as the levees or embankments other than the ones built alongside the water courses, concretely the ones at the end of the field opposite to the canal, and, presumably, on the sides too. These levees, probably relatively low, allowed basin or border irrigation of the field. To Sum. sa-dúr corresponds Akk. *šuburru*, written SA.KU. It is likely that sa-dúr was replaced occasionally by a simple dúr, e.g., *Or* 47-49 511:7.³⁵ In the property transactions of the first Babylonian Dynasty, the term is used somewhat loosely to indicate the rear boundaries, and adjacent area, not only of a field but also of palm gardens, of empty parcels (BÚR.BAL), and even of urban plots. The older form of sa-dúr-ra could perhaps be ŠEŠ-dúr-(rá), perhaps /šedur/, in PS Girsu, see 7.1.3.4 *b*. Physically, the sa-dúr-ra levees, inasmuch as their dimensions are given, are remarkably wide: 6 m in *TENS* 459; the total area of the cross sections in *YOS* 4 209 presupposes similar dimensions. The following paragraphs justify the interpretation proposed here and provide further details.

7.1.3.3. Lexical evidence

The equation of sa-dúr (and its variant spellings) with Akk. *šuburru* and *aburru*, follows from the lexical passages, already quoted in 7.1.1.3 which give:

(a)	ég sa-dul-la (var. -bi)	MIN <i>aburri</i>	Hh XXII 9:7'.
	ég [sa]-dúr-[x]	MIN <i>šu-bu-ri</i>	Hh XXII Ugarit 52
	ég sa-dúr-da	[MIN] <i>šu-bu-ri</i>	Hh XXII Emar 4.

Also relevant to the discussion is canonical Hh II 259ff.:

(b)	sa-dul-bi	<i>aburru</i>
-----	-----------	---------------

é sa-dul-bi
i-zi sa-dul-bi

bīt aburri
igār aburri

Note the var. ég sa-du-ul-bi in an OB school exercise (V₆) and, more significantly, the var. [s]a-KU in an Ugarit text (V₃). The Emar version (*Emar* 6/4 542:217'f.) gives:

(c) []
[]

e-bu-ru
i-ki e-bu-ri

It follows from V₆ and from the Emar version that Hh II 260 originally had ég, not é, more in consonance with what is found in the administrative texts. Nigga bil. B 247 has sa-dúr = šu-bu-úr-ru-[um], followed by the homograph sa-KU = *ishu* (the reading of KU in this word is unknown), unrelated, except graphically, to the term under discussion.³⁶ In conclusion, the earlier lexical texts, up to the MB version attested in Ugarit and Emar, equate sa-dúr with šuburru, except for Hh II which in Emar already has *eburru*; the later canonical HAR-ra, both in Hh II and Hh XXII, has *aburru*. Concomitantly, the sign dūr is replaced by dul, and -bi is mechanically added. This -bi comes from OB legal formularies, and, poorly understood, results in a mistranslation "house of the *aburru*," instead of "the *aburru* of the house."

7.1.3.4. Texts

(a) Ur III texts

In the administrative texts of this period, the term ég sa-dúr-ra is, as a rule, immediately followed by a field name: *ArOr* 25 557; *JSOR* 12 42 no. 30; *BIN* 5 237; *BRM* 3 121; 126; *MCS* 2 10f.; *Nikolski* 2 162; *SACT* 2 23; *STA* 2 iv 12ff. (compare *AOS* 32 D 24); *SAKF* 7 42; *TENS* 92:26; 116:14; *JCS* 16 14; A 3125 (8.2:2.4); A 2644 (8.2:2.10); *ASM* 12104; etc. A few exceptions, e.g., ég sa-dúr-ra id lugal *SET* 259:9, or ég sa-dúr-ra é anše *TENS* 149:4, are only apparent; they are in fact instances of omission of a-šà before the field name.³⁷ The way this term is associated with field names is compatible with the assumption that it designates a portion of the field rather than a type of work. The tablets where the term appears invariably deal with earthworks. Other activities and situations listed in these tablets³⁸ are: a-da gub-ba "water duty" (*ArOr* 25 557; *SET* 259; *STA* 2 iv 12ff.; *SAKF* 7 42); pa₄-a-da-ga "(digging) irrigation ditches" (*JSOR* 12 42 no. 30; A 3125 [8.2:2.4]; A 2644 [8.2:2.10]); KIN ú sahar-ba "excavating and reinforcing (with reed bundles)" (*BRM* 3 121; *ASM* 12104); úš-a "damming up" (*JSOR* 12 42 no. 30; *TENS* 116); a-e gu₇-(a) "eroded by the water"³⁹ (*TCL* 5 5674 v 17); a-è-a "overflow" (*BM* 105637 [*MCS* 4 10]; *YOS* 4 209); šu-úr-ra (*AOS* 32 KK 11 = *PIOL* 19 201), for which see commentary to FI line 80; for ég zi-DU and ù ki-ta tùm, see 7.1.4.1. The basic text for the understanding of ég sa-dúr-ra, in this period, is *YOS* 4 209, a four-column tablet from the 7th year of Šu-Suen. The subscript is undecipherable, but most of the rest is well-preserved and the missing amounts can be easily reconstructed from other data in the same entry; the breaks have thus been implicitly restored below, whenever possible. The text lists amounts of earth moved, type or place of the works, and costs in barley. The formula used is l gíd r-ta kin-bi v, followed by work designations. In the following table, the length is given in ninda, and the volumes in sar; s = cross section, in m². The barley expenditures are not included.

7.1. Levees, Ditches, and Dikes

Table 7.1.9. Work in YOS 4 209

	<i>l</i>	<i>r</i>	<i>s</i>	<i>v</i>	work and remarks
1	200	2	6	400	ég sa-dúr-ra
2	71	2	6	142	
3	40	1.5	4.5	60	
4	40	2	6	80	
5	74	1.5	4.5	111	ég zi-DU new canal of the field <i>Igiemahše</i>
6	300	2	6	600	[ég z]i-DU
7	195	2	6	390	ég sa-dúr-ra
8	200	1.5	4.5	300	ég sag-du on the side (á) of the field of <i>Ninurra</i>
<i>a</i>				2083	(total of 1-8). Field <i>Igiemahše</i>
9	350	0.3	1	116.6	
10	30	4	12	120	ù ki-ta tùm
<i>b</i>				236.6	(total of 9-10). šà zag 5 ús-ka
11	14	4	12	56	ù ki-ta tùm
12	90	0	0	0	nu-tuku
13	12	5	15	60	ù ki-ta tùm
14	30+	0	0	0	nu-tuku
15	10	30	90	300	a-è-a gu-la
16	28	0	0	0	nu-tuku
17	2	5	15	10	nag-ku ₅
18	8	0	0	0	nu-tuku
19	2	6	18	12	nag-ku ₅
20	28	0	0	0	nu-tuku
21	2	6	18	12	nag-ku ₅
22	1	0	0	0	nu-tuku
23	128.5	2	6	257	[]
24	x+7	0	0	0	[nu-tuku]
<i>c</i>				707	(total of 11-24) [ég] zi-DU (on the) banks of an a-ga-am egir zag 5-ús-ka
<i>d</i>				220	hired workers at 6 <i>šila</i>
<i>e</i>				723.6	share work
<i>f</i>				943.6	= <i>d</i> + <i>e</i> field é-mah
<i>g</i>				2303	<i>a</i> + <i>d</i> (hired workers)
<i>h</i>				723.6	= <i>e</i> share work
<i>i</i>				3026.6	= <i>g</i> + <i>h</i> (grand total)

The text deals with two, probably contiguous, fields, the field of the Emah and the field *Igiemahše* "facing the Emah", bordering the field of *Ninurra*. There is a fair amount of information on these fields, see *UNL* 1 nos. 275, 437, and 658, respectively. Several types of earth work, rarely mentioned elsewhere, are described here. The text can be divided in two sections. The first, entries 1 to 8 (perhaps also 9), deals with ég sa-dúr-ra, ég zi-DU, and ég sag-du. It is not clear whether entries 2 to 4 have to be considered as ég sa-dúr-ra or ég zi-DU. In any case, there are no significant variations in cross section among the different types of levees. The rest, entries 10-24, deals with ù ki-ta tùm, a-è-a, and nag-ku₅; some sections are said not to need work (nu-tuku). The amounts of earth per unit of length involved in the second section are, as a minimum, twice those of the first section. The technical terms in the second section are separately discussed in 7.1.4. The term zag 5-ús "a fifth" (entries *b* and *c* in table) does not designate earthwork but some type of administrative or fiscal field division.⁴⁰

Few other Ur III texts provide quantitative information about *ég sa-dúr-ra*. *TENS* 459 gives the cross sections for a levee 738 m. long divided in five sections of decreasing size, from 6 x 1.25 m to 6 x .50 m. Unfortunately, the subscript, *kin ég x íd A_xMUŠ*, is not clear.⁴¹ The tablets *JCS* 14 16 and *ArOr* 25 557 U3 give earth volumes and labor. In the first, 60 *sar*, in two different places, need 360 workmen with wages of 5 *sila* of barley. The daily work assignment, not explicitly given in the text, is the regular one of 10 *gin* per man/day. In the second, 3 1/2 *sar* 3 1/3 *gin* require 40 man/days; the implied daily amount, $(213 \frac{1}{3})/40 = 5 \frac{1}{3}$ *gin* per man/day, is low.⁴² The rest of the texts give only volumes (e.g., *TENS* 149; A 3125 [8.2:2.4]; *ASM* 12104; *BIN* 3 121) or, more frequently, only the number of workmen (e.g., *Or* 47-49 250; *Nikolski* 2 162; *JSOR* 12 42 no. 30; *SET* 259:4f.; *TENS* 92; 116; A 2644[8.2:2.10]). It is possible to obtain an estimate of one of the variables from the other one since they are related by the earth volume assigned daily to each worker. The standard amount is 10 *gin*, ca. 3 m³, but it is subject to variations.

(b) Pre-Sargonic Girsu

In the Lagaš area, there is a term *ŠEŠ-dúr-rá/a* which seems to designate a type of dike and contrasts with *ŠEŠ-gub-ba*.⁴³ It may very well be the Pre-Sargonic equivalent of *sa-dúr*. In *ŠA* 23, seven teams of from seven to thirteen men perform work described as *kin-dù-a íd al-dù ŠEŠ-gub-ba-kam* "construction work, canal digging, of ...," after that, the same teams perform *kin-dù-a ŠEŠ-dúr-rá-kam*. The length of the work assigned to each man is 4.7 *k* in the first case, 3 *k* in the second, with no indication of the length of time involved. *DP* 614 lists three teams whose work is similarly classified as *ŠEŠ-gub-ba* and *ŠEŠ-dúr-rá*, and these two terms appear alone in *DP* 633 and 634 iv 3(!), respectively. Finally, *DP* 652, describing levee work, ends *ŠEŠ-dúr-a e-ma-dù* "(the superintendent) built the ..." ⁴⁴ It is not excluded that the expressions under discussion are designations of some unknown administrative particularity in the assignment of tasks, but the similarity of forms (there is no objection to *sa-dúr* and *ŠEŠ-dúr* representing the same phonological word), and the fact that *ŠEŠ-dúr* is found only in earthwork texts, strongly suggest the basic identity of the Pre-Sargonic and Ur III forms. I have no suggestions, however, about the precise meaning of *ŠEŠ-gub-ba*.

(c) Old-Babylonian texts

The Sumerian letter B 11 (edited in 8.1.8.3) tells of two individuals who have brought a legal complaint about 180 iku of the *sa-dúr* of the field Dabta. This extension corresponds to 1/18 of the total area of the field and to 1/6 of the area reserved for share owners. The word *sa-dúr* therefore does not mean only the boundary line but also the adjacent area, or perhaps the area enclosed by *sa-dúr* embankments. Field descriptions in family archives from Northern Babylonia, dating from the 1st dynasty of Babylon, use at times the logogram SA.KU to designate the second narrow side of a plot.⁴⁵ A selection of references can be found in *CAD* A/1 90b *aburru*.⁴⁶ The lateral limits, or longer sides, of a field are almost always given. In certain cases, the texts add the narrow ends (SAG 1 and SAG 2). In a small number of documents one finds SA.KU.BI replacing SAG 2. Its reading is in all probability *šuburru*, as shown not only by the lexical references in 7.1.3.3, but also by the explicit writing *šu-bu-ra-šu* in *CT* 4 47b:5. Only *VAS* 8 121-122 raises the possibility of a reading *arkatu* by having

7.1. Levees, Ditches, and Dikes

SAG.KU.BI on the tablet (122:7) and EGIR.BI on the case (121:7).⁴⁷ What is the difference between SAG 2 and SAKU? A couple of texts have both terms: BE 6/1 46 has SAG.BI 2.KAM in line 6, but SAKU.BI in line 18; RIAA 255 seems to have, as far as one can surmise from the copy, SAKU in line 1' and [SAG.BI] 2.KAM in line 11'. The latter is in poor condition, but the first one is part of a collection of property abstracts more fully represented by YOS 13 470: BE 6/1 46:1-13 = YOS 13 470:13-18 and BE 6/1 46:14-26 = YOS 13 470:1-6. The second short side described as SAKU.BI in BE 6/1 46:18 is labeled SAG.BI 2.KAM.MA in YOS 13 470:3. It would thus seem that the alternation of the two terms is a matter of free scribal choice comparable, for instance, to the replacement of the usual *itû* in YOS 13 470:1f. by *ûs.SA.DU* in the parallel BE 6/1 46:15f. The observation that the choice of writings is affected by synchronic factors (e.g., SAKU is relatively more frequent in Dilbat than in Sippar) confirms this interpretation. It is likely that SAKU was considered an archaism and that the two words were completely synonymous, although it is not completely excluded that SAKU may have been considered a subset of SAG 2 with a slightly different, more precise meaning.

(d) Post-Old Babylonian texts

In these texts, *aburru* (written SA.DUL.BI) replaces *šuburru* in lexical sources (7.1.4.3), and, once, in an omen text (*Or NS* 42 [1973] 512:3). The word *aburru* seems to appear for the first time in the Mari text ARM 6 5:14 meaning something like "water boundary." Otherwise it is found in a literary expression in which it corresponds to Sum. *û-sal*, and designates a low-lying, fertile area along a water course, see the exhaustive study of Veenhof 1973:371ff. The word *šuburru* reappears in an isolated instance many centuries later. A Nippur canal work contract from the 5th century B.C. (Stolper 1985:27f.) describes the work as digging *ina muhhi šuburri adi muhhi dannati* "from the bottom of the field to 'firm ground'."

7.1.4. OTHER TERMS RELATED TO EMBANKMENTS

This section deals with terms that are not discussed in the preceding sections but either include *ég* or appear in more or less close connection with *ég* in the documents previously examined.

7.1.4.1. Barrage embankments (*ég zi-DU*)

This is an infrequent term understood as "providing a canal with weirs" by Oppenheim 1948:40, on etymological grounds (he quotes *zi-da* = *šaqû*, and *kun-zi-da* "weir"). This explanation is repeated in Salonen 1968:432, and Bauer 1972 p. 73. Although the etymological argument is, in my opinion, inadequate, this interpretation has now some lexical support in the Forerunner to Hh VIII-IX 171ff.:

171 gi zi-DU
172 gi giš-kéš-da
173 gi kun-zi-da
174 gi giš-gi₄-gi₄

All these terms are translatable by Akk. *mihru* "weir," although only lines 172 and 173 survived in the canonical version, see Hh IX 315ff. The precise meaning of *zi-DU* in the

present construction is not clear.⁴⁸ The PS text VAS 14 187 = AWL 3 is a record of *ég zi-DU*-work (*kin-dù-a ég zi-DU*). Each workman is assigned only ca. 0.5 m of a total work length of ca. 72 m. This could be taken as an indication that it was a difficult task. However, since the PS texts from Girsu give only the assigned length and never the cross sections, no firm conclusion is possible. The only Ur III text with quantitative information is YOS 4 209, presented in 7.1.4.2; items (5) and (6) list embankments 37 m and 150 m long with cross sections of 4.5 and 6 m², respectively, and there is a large section (11-24), with *nag-ku₅* and other kinds of work, all qualified of *ég zi-DU*. Or 47-49 250 gives only the work force for *ég zi-DU*-work, next to *ég sa-dúr-ra*, and ASM 1204 (unpubl., courtesy Gibson) gives only the earth volume involved, together with *KIN ú-sahar*.⁴⁹ In conclusion, despite the possible, but unattested, equation **zi-DU = mihru*, *ég zi-DU* is not a simple dam thrown across a canal to divert its waters. This is incompatible with the length attributed to the *zi-DU* embankments in the references above. If it means dam or barrage, it has to be an embankment closing a relatively wide reservoir. Note that both YOS 4 209 and Or 47-49 250 refer in all likelihood to the same structure in an area which had extensive hydraulic works, see the discussion of *a-ga-am* in 7.1.4.3. The element *zi-(d)*, likely to be not a verb but a qualification of the place or type of construction of the embankment, is possibly the same that appears in *kun-zi-da*, the normal and frequent term for "dam in a canal" in Ur III, but the variation *-DU/-da* is of unknown significance.⁵⁰

7.1.4.2. The "head embankment" (*ég sag-du*)

Apparently attested only once in YOS 4 209 (see 7.1.3.4, item (8) after *ég sa-dúr-ra*) *ég sag-du* may designate a levee on a short side (*sag*) of a field, concretely the one opposed to the *sa-dúr* side.

7.1.4.3. Artificial ponds (*a-ga-am*)

To the writings *a-ga-am*, *a-ga-àm*, and *a-ga-mu-um* (in addition to the lexical *AxBAD*) already pointed out by Sauren 1966:45, one can add *a-ga-an* in A 4270 (8.2:2.3). Sauren has a complete discussion of the term which he translates "Schilflagune," a translation generally followed, with some variations, e.g., "Lagunenkanal" (Pettinato 1967:7), "champs de roseaux" (Grégoire 1970:43). These translations do not provide the best possible picture of an *a-ga-am*, given the available evidence. Its function is explicitly stated by Sennacherib who created an *agammu* to slow down the water flow (*ana šupšuhi alakti mê OIP 2 115 viii 47*). Similarly, Siniddinam doing extensive hydraulic work (*gal-bi hé-em-mi-ba-al*) on the Tigris, after bringing an intake to Kisurra, the ancient border, "greatly established" an *a-gam-ma* (*ki-sur-ra in-dub libir-ra ka um-mi-tùm a-gam-ma-bi-šè si gal hé-em-mi-sá, Sid 6:42ff.*). An *a-ga-am* had not only an intake (*ka*, also in A 3127 and *Nikolski 2 113*) and could overflow (*a-è-a UCP 9/1 2 92; SACT 2 15; 114*), but could also have dams (*kun-zi-da SKAF 7/8 41*) and embankments (*ég A 4270*) and required therefore earth work (*sahar si-ga TCL 5 5675 ix 11ff.; BRM 3 117; MVN 13 363*). It was very likely a large, marshy, and permanent or semi-permanent lake used as reservoir to dispose of flood waters. It is noteworthy that the great majority of Ur III references to an *a-ga-am* refer to the same one in an area touching the fields Emah, Igiemahše,

and the field of Ninurra (for this region, see Sauren 1966:177). To the same area belong two of the three references to *ég zi-DU*, see 7.1.4.1.⁵¹

7.1.4.4. Riverine areas (KA-a-DU and *ù*)

These are infrequent words of unclear meaning designating something which, at least in some cases, either required embankments or was located on or near old levees.

7.1.4.4.1. KA-a-DU

This term appears in two kinds of contexts: (a) work on levees, and (b) descriptions of palm gardens and orchards. Except for the proposal of Carroué 1986:52⁸², who reads ka-a-rá and translates "bouche d'un cours d'eau," and for the translation "an der Abzweigstelle gelegen" in Sauren 1969 p. 287, I do not know of any other attempt of explanation. Of the known meanings of KA-DU, see Civil 1976a:92 ad 23, none seems applicable. Note, however, ka-tùm in Sid 6, quoted in 7.1.4.3.

(a) The text CT 3 35ff., discussed in 7.1.2.3 *g*, a survey for work assignments on the banks of a canal, lists several instances of KA-a-DU bank segments (lines 6, 44, 50, 127, 147, 157, 185, 223) which either do not have embankments or do not require work on them. The second possibility seems more likely since SACT 2 140 mentions earth work on a KA-a-DU and on an embankment in the same place. The length of a KA-a-DU-section in CT 3 35ff. ranges from 6 to 15 m, with an average of 8.25 m.

(b) Orchard descriptions contrast a KA-a-DU area with a ki-gál-area and, sometimes, with a palm planted area. Examples mention palm trees, with pomegranates planted underneath (nimbar *úr-ba nu-úr-ma* BM 14334, CT 10 49; HLC 3 149, 391),⁵² with grapes (*geštin* BM 14309, unpubl.), or with apples (*hašhur* BM 13332 unpubl.). The KA-a-DU areas in these texts are relatively modest, of the order of one *iku* in most instances,⁵³ but TÉL 233, a list of orchard workers, mentions 55 *iku* of KA-a-DU, with two workers assigned to each *iku*.⁵⁴

I will assume that the word KA-a-DU has the same meaning on both groups of occurrences. If so, Carroué's proposal cannot be maintained. Something measured by area and planted with fruit trees cannot be a canal's mouth. The most one can say at present is that KA-a-DU designates an area next to a water course suited for fruit trees and vineyards. Its location required at times that it be protected by levees. If the parallelism with ka-tùm in Sid 6 (see 7.1.4.3) is relevant, it could designate land with direct access to water. The contrast not only with ki-gál but also with date palm areas (A 32045 and BM 13332), however, suggests that the term may after all refer not to canal topography, but simply to some agricultural classification.

7.1.4.4.2. The *ù* grounds

This term was already recognized by Deimel, "e. Art Bewässerungsgraben(?)" ŠL 455:30, in PS Girsu texts. Sauren 1966:65, leaves it untranslated. The word *ù* is regularly followed by a watercourse name, except in the case of some field names (UNL nos. 806, 808, 811, 882, 853,

812a, 822a). It could be planted with trees: 1 iku ù ^{id}AxMUŠ ^{giš}šinig ì-in-gub lú šu nu-un-dug₄ erín-e di bí-ib-dug₄ ba-ab-túm "(PN) had planted tamarisks on the ù of the AxMUŠ canal. No one tended (this land). The troupes filed a complaint and it was taken away (from him)," Falkenstein *Gerichtsurkunden* 2 pp. 391ff.⁵⁵ In UET 3 1416, tamarisks and palm trees are planted igi ù. It is given as a location for vineyards and orchards in BM 14334 (CT 10 49). This type of land was subject to erosion, TENS 274. In PS texts, DP 647 is a record of earthworks on the ù of a canal, and of a tree plantation (kin-dù-a ù íd-mah, kin-dù-a ù tir ašte^{ki}); cf. also DP 654 iv 3. The field surveys, which classify the land according to type and quality of soil, list sometimes the area of the field occupied by ù-land. Thus, according to AfO 19 (1973) pl. 17f. i 19, in the "King's field" 34.5% of the total surface was taken by ù and KI.UD land.⁵⁶ BM 14615 (*Mesopotamia* 5/6 [1970-71] 299ff., collated from photo) lists 71.25 iku of ù-land in the totals (vi 6),⁵⁷ and TUT 12 v 1 lists 44 iku of the same, next to 1204.75 iku of river and canals and 362 iku of levees. The term ù can be confused with the conjunction ù, but ka ù bar-ra-da Or 47-49 239, and ka ù bad-da, Or 47-49 250, as well as ù-sur (RA 25 20f. iv 5; TCL 5 5674 vii 26; and cf. RGTC 2 235; UNL no. 851), seem to be genuine instances of a noun ù. YOS 4 209, entries 10, 11, and 13 (see 7.1.3.4) mentions an operation ù ki-ta tùm, literally perhaps "to bring the ù out/away of the ground" or "from below," together with embankment and a nag-ku₅ construction on the banks of an a-ga-am. In Nikolski 2 104, ù tùm may refer to a similar operation during a flood of the Tigris. An attempt to throw further light on this term can be made by assuming that ù stands here for u₅. Examples of such sign replacement in Ur III texts are found in the phrase ^{giš}má má-lah₆-bi i-íb-ù "the boat is manned by her crew" (e.g., Or 47-49 252; AnOr 1 53; 58; 61; RA 25 20 i 1), in boat rental contracts, where ù stands for u₅ = *rakābu*. Similarly, lú al-dab₅ ba-a-ù "the one who took (the boat) in chage will man her" BIN 5 131.⁵⁸ Note also the Ur III toponym du₆-lugal-ù/u₅ pointed out in AnOr 30 24 no. 17. If the assumption that the ù under discussion stands for u₅ is correct, then the equations of u₅ with *šip[ku]* "earth pile" and *iku* "levee" (Aa II/6 iii A 14', and B iii 11') provide a clue to its meaning. The ù would thus be high ground, perhaps old levees or even an island, near the river or canal banks. The difference between KA-a-DU and ù cannot be determined (there seem to be no trees planted on an u₅, however). In BM 14334 (CT 10 49), a KA-a-DU-area is located on an ù. There are no clear instances of ù/u₅, outside the administrative records of Ur III time to confirm or disprove this meaning. Note, however, u₅ bànda-gin₇ peš₁₀-ta sur-sur-ra "like a proud u₅ (island?) away from the river banks" *Keš Hymn* 27.⁵⁹ Finally, the expression a-u₅/ù-ba, idiomatically translated into Akkadian by *mīl kiššati* "high waters," "the cresting of the (yearly) flood," could very well mean in Sumerian "the water in the ù-lands," i.e., the time when the waters cover or reach the higher ground on the banks. The alternation of ù- (Proto-Kagal bil. B 5) with u₅- (Nabnitu XIV 23) is a further indication that the explanation just given may be the right one. Steinkeller 1988 proposes a meaning "bridge" for ù, in my opinion, on insufficient grounds. In a region with unstable, meandering watercourses like S. Iraq, one may expect to find terms for banks or islands created by the changes in the river beds resulting from the yearly floods. The term just discussed may be one of these terms.

7.1.4.5. The nag-ku₅ reservoirs

7.1. Levees, Ditches, and Dikes

The nag-ku₅ is one of the most discussed parts of Ur III hydraulic works. See Steinkeller 1988:74ff., with discussion of previous opinions. Although the term does not appear in FI and thus no commentary is required, it is so frequent in the texts just examined that a few remarks are in order. No attempt is made here, however, to solve all the questions raised by this term.

(a) The function of the nag-ku₅ is revealed by the letter of an anonymous šabra, presumably from Nippur, edited in 8.4. The sender informs the military authorities that the Euphrates has overflowed in direction of the Tummal, that "the troops are making a huge nag-ku₅" (line 6), and that a field downstream is covered by 0.75 m of water. The nag-ku₅ is therefore a *lateral* reservoir or pond to which to divert the excess of flood waters. It is thus primarily a structure for flood control, not for irrigation as traditionally assumed. It is situated off-line in relation with rivers and canals, not in the canal itself, as proposed by Steinkeller, or at the head of a ditch system, as suggested by others. Diversion ponds were made at needed intervals to keep the level of a water course within acceptable limits. It is possible, naturally, that later on, when the waters subsided, some of the stored water was used for irrigation, but this was not the main purpose of the structure. The report MVN 14 225 illustrates this connection between flood and nag-ku₅ when it informs that 14 *iku* have been flooded (a-dé-a), that three nag-ku₅'s have been made there, but that there is "no place to plow before the new moon." Few texts dealing with nag-ku₅-work are dated by month, but the dated ones are spread over most of the year. This could be considered evidence for using the stored flood waters the rest of the year, although the preparation of reservoirs, ahead of time, on vulnerable points of the water system cannot be dismissed as explanation for work outside the flood season.

(b) The supposed dimensions of a nag-ku₅ given in previous analyses are often the dimensions of its embankments. A clear example is DP 639. The length of the works is explicitly said to be of an ég, the total calls it a nag-ku₅. The total embankment length is ca. 36 m. It is not known whether the reservoir shared any of its levees with the canal. If none was shared, the surface of the reservoir would have been 103 m² if it had a circular shape, 81 m² if it was square, and as little as 32 m² if it was long and narrow with a width/length ratio of 1:8. If it shared embankments, the maximum area, 412.5 m², would be in the case of a semicircular reservoir which shared its diameter with the ditch bank. Uncountable other combinations, with lesser areas, are possible.

(c) As a corollary, the notation *n* nag-ku₅'s, after the description of embankments, means only that there were *n* nag-ku₅'s along a given stretch of water course. The nag-ku₅'s are either not included in the computation of the water course length (no embankment shared), or they represent a relatively short length of the same (part of the embankment shared). The first case may be illustrated by MVN 10 102; 231 (2.3.a);⁶⁰ and ITT 5 6864 (3.3.d), the second by DP 642 i 1-3 or YOS 4 209 (7.1.3.4), items 17, 19, and 21. In the first case, only the total volume of earth used is given, *apart* from the volume used in the levees and with no linear dimensions.⁶¹ In the second case, DP 642 shows a nag-ku₅ with a canal frontage of 12 m

alongside an embankment 1,632 m long, while YOS 4 209 illustrates the practice of giving the frontage and the volume. In *Or* 47-49 511:8ff. it makes more sense to assume that, besides the frontage, listed as *gíd*, the other linear dimensions are given to help the computation of the earth volume, not as an indication of shape. The two *nag-ku₅*'s in this text require 60 and 42 m³ per meter of length.

(d) The objective of the scribes in redacting these records was to compute the labor and costs of earth moving and to divide the task among different workmen. For this purpose the embankment and ditch lengths were all important, their cross sections are given only as means to compute volumes. In the case of *nag-ku₅*'s, unless one of their dimensions was significant in the segmentation of the canal or ditch length, only the total volume of earth moved or to be moved was of significance. The scribes could not care less about the shape of the reservoirs.

(e) The Akkadian translation *butuqtu* of *nag-ku₅* is to be considered reliable, despite being provided only by a late liturgical text (*BA* 5 617:9f.). On the one hand, this translation shows a connection of *nag-ku₅* with flood waters and not with irrigation waters, and prompts a revision of the meanings of the Akkadian term, on the other. The translations "1) flood, and 2) sluice channel" (*CAD* B 356b *butuqtu* A) can now be made more precise. A *butuqtu* is (1) a cut or break on the embankments of a river or canal, resulting in a flooded area, and (2) the waters which cause the break and submerge the fields. The break can be unwanted, due to the force of the flood waters, or it can be the result of purposeful human intervention, either to prevent uncontrolled damage (in which case the waters will be diverted to a pond or reservoir) or, on the contrary, to inflict punishment on the enemy. Akk. *butuqta batāqu* does not mean "to cut off sluice channels," or the like, but simply "to divert the waters" by the process just described. Thus one will now translate the passage of the *kudurru* of Nebuchadnezzar I (*CAD* *ibid.* 1 c) "an uncultivated field which was used as a *butuqtu*," i.e., as an area to which to divert surplus flood waters. In the omen YOS 10 46 iv 46 (*ibid.* 2 b) the enemy does not cut off the water supply, he diverts the waters to flood the fields. In the first meaning, *butuqtu* corresponds to Sum. *nag-ku₅*, in the second to Sum. *a-mah*, *a-gal*, and *a-è-a*.⁶²

7.1.5. CONCLUSIONS

The present chapter should in no way be considered an exhaustive study of the terminology and technology of the ancient Mesopotamian artificial water courses and attendant structures. It only examines the basic sources and analyzes the main technical terms. Thus many structures, such as the *kun-zi-da* or *bar-lá*, and operations, such as *šu-ùr*, are not discussed. The same can be said for planning and design; recall the scribe who made the plans of the embankments (*ég-e giš-hur-ak*) listed in *NATN* 85:11.⁶³ In keeping with the orientation of *FI*, all legal and labor aspects of water works, so important in Ur III archives, have been disregarded in the present discussion. Most Ur III texts dealing with earth moving refer to the construction of embankments (*ég*). This is an agreement with the water regime in the area. The need to protect the crops, ready for harvest from the rivers' high waters, and to prevent the flooding of towns and fields, is clear in economic and literary texts.⁶⁴ In accounts

7.1. Levees, Ditches, and Dikes

of hydraulic constructions, Ur III scribes prefer to focus on the amounts of earth extracted and piled up rather than on the cross sections of the water courses. This may be due to a pragmatic reason: the volumes must have been easier to compute this way, and they are more suitable to the computation of manpower, the main objective of the scribes. It is a more general method since it can be applied not only to levees or embankments, but also to other types of earth moving. The earth piles are always computed from ideal rectangular dimensions and not from real-life trapezoidal shapes. In general, the described levees are wider than high, one significant exception being embankments in a garden (MVN 6 139). Although there are records of substantial embankments, of 6 and even 9 m² of cross section (used perhaps as causeways), a majority of texts refer to works of very modest dimensions. In any case, there are no administrative records of the excavation of large canals. Either this was a type of work which was outside the scope of the local administrations of Umma and Girsu, or these provinces did not need at the time new large scale irrigation works. It is also possible that the canal construction documented in the royal inscriptions of Ur-Namma fulfilled the needs of Southern Mesopotamia for the following sixty years, the stretch of time covered by the administrative texts.

Footnotes

¹ There is a certain amount of confusion in the English words used to translate the Sumerian terms designating artificial water courses and attendant structures. According to *Webster's Third*, 'dike' (or 'dyke') is '1a: an artificial water course (as for drainage), b now dial[ectal] Brit[ish]: any natural or artificial water course ..., c: [a synonym of] pool, pond ...; 2a dial. Brit.: a wall or fence of turf or stone, b: a bank usu[ally] of earth constructed to control or confine water ...'. It seems thus prudent to avoid the ambiguous 'dike'. A more precise designation for the type of water course under discussion is 'ditch 1: a long, narrow excavation dug in the earth ... 4: a natural or artificial usu. narrow water course or waterway ...'; 'to ditch 1: ... b: to dig a ditch in (as for drainage or irrigation)'. The best term for the earth ridges alongside the ditches is 'levee 1a: an embankment designed to prevent flooding ... 2: a small continuous dike or ridge of earth for confining the irrigation checks of land.' This is the term in use in most studies of irrigation systems. Also acceptable is 'embankment: a structure (as of earth or gravel) raised usu. to prevent water from overflowing a level tract of country, to retain water in a reservoir or a stream or its bed.'

² Usually transliterated e-(g). The form *ég* or *ék* (/ek/) is the one given by the syllabaries (Proto-Ea 217, S^a 282), and by the gloss *ek* in Ni 9628 i 24' (*Fields of Ninurta*, OB). It is the one which underlies the Ugarit var. a-ga-šà-ga, instead of *ék-si-ga*, in Hh II 214. It is also the form reflected by Akk. *iku*. The final -k/-g is explicitly seen, e.g., in Ur III, bar *ég-ga* "the outer side of the levee" and in the passage JNES 26 (1967) 207 A r. 1'f. (all quoted in the subsequent discussion).

³ CAD has only "dike" in the heading, but occasionally reverts to "ditch" in the body of the article, and especially in the final comment. AHW 370 *iku* has explicitly "kleiner Kanal," alongside "Kanaldamm."

⁴ Civil 1965:59 defends the exclusive meaning "levée" for *ég*. Postgate, independently and with great enthusiasm, took a similar position in the SAG Meeting of July 1987. Waetzoldt 1990 is a well documented presentation of e(g) = "Damm," he still keeps, however, "Graben mit Dämmen." I would rather say, if needed, "levees with a canal."

⁵ The meaning "plot of land surrounded by a dike," proposed in CAD I 68 *iku* 2, does not seem sufficiently established. Some of the references, like BA 5 520 no. 61 and CT 4 9b, could go to *ikû* and be translated by "acres;" a translation "embankments" makes perfect sense in STT 70, the "gardner's embankment" is obviously a proverbial phrase, etc. The relationship between *iku* "dike" and *ikû* "unit of surface," suggested in CAD I 68b, is pure etymological speculation and will not be discussed here.

⁶ The closest a text can come to being descriptive can be illustrated, for instance, by the Ur-Namma inscription boasting of the drainage of a marshy area (*Un* 27, *UET* I 284 and dupl.). Even in this case, however, the narrator chooses only the salient points germane to his purpose of glorifying the king's activities, not necessarily the technical characteristics of interest for a modern historian.

⁷ The ED *Geographic List* (MEE 3 pp. 227ff.) has the alternation ba-la-ak^{ki} (Ebla) = *Eki* (Abu-Salabikh), apparently contradicting the above equation. It may be an instance of the "lexical shift" discussed in Civil 1984:86ff., and an indication that one must be cautious in interpreting ED texts.

⁸ Examples of structures, other than *ég*, with sahar si-ga: nag-ku₅ (*UCP* 9/2/1 8; *TENS* 144; *AnOr* 1 144; *Nikolski* 2 139; and often), ka *íd*-(da-ka) (*TENS* 69), kun *íd*-da-ka (*SACT* 2 6), kun-zi-da (*Nakahara* 38), a-ga-am (*TCL* 5 5675 ix 10ff.), dub-lá-^autu (*Or* 47-49 349); with ba-al: *íd* (*MVN* 10 105; *Bab* 8 pl. 6 24; *JCS* 24 172 ii 6; and often), pú (*UET* 3 1432 r. 12'), and bar-lá (*TENS* 4; 152).

9 Naturally, it is always possible to estimate the earth volumes involved from the more or less standard daily assignments (usually 10 *gin*/day per worker) or wages (6 or 7 *sila*/day of grain).

10 Compare *ki—dar* "to break the ground."

11 The verb *ak* is occasionally found in these Ur III texts in the form *nu-ak*, to indicate that part of the construction is not yet done (e.g., *CT* 3 35ff.:72, 75, etc.). In contrast, the notation *nu-tuku* (e.g., *AnOr* 1 33:21) designates the segments of the ditch which did not require work on their levees.

12 The two sides, *á 2-(a)-bi*, are also mentioned in *ITT* 5 6864 r. iii 8'; *TUT* 9:9, r. 5; in *CT* 3 39:240: *gú* (*id-nina*^{ki}-*šè-gin á <2>-a-bi* (or *á 2-bi*), collation (courtesy I. Finkel) shows that the tablet has *á a bi*. As for the mountain image, cf. *E = šadû MSL* 11 55 ii 13.

13 Thus *ég a-ra-li-ka ga-an-šub ki-mu na-ab-pà-dè Dumuzi's Dream* 94 (and 150) has to be translated "I want to hide in the embankments of Arali, so no one can find my (hiding) place," rather than "I will fall down in the ditches of Arali! show (them) not my place" (Alster 1972). The meaning "to hide" is required by the parallelism with the preceding line *sag ú gal-gal-la ga-an-šub ki-mu na-an-pà-dè* "I want to hide in the tall grasses, so no one can find my (hiding) place." Another instance of "falling into the *ég*" is *JNES* 26 207 A r. 1f. *ég-ga-mu ég-ga ba-šub pa₅-ra-mu pa₅-ra ba-šub* (reconstructed text): *ina i-ki it-ta-an-[d]* (thus read following a suggestion of Cooper). The following context, "the ones of mine that went for firewood/water were carried away," shows that the passage does not require a translation "to fall into (an excavation)." The passage can be simply paraphrased: my man who was working on ditches/levees was struck down where he worked.

14 Gap *h* is now filled in, but the *MSL* line numbers have been kept. Sources: A = *AfO* 28 112; D = VAT 9430, aberrant version with *ég* before *pa₅* not included here because it is very poorly preserved, and the lines that cannot be confirmed by duplicates remain extremely uncertain; I = *SpTU* 3 114 B; J = *SpTU* 3 114A; S₁₀ = *UET* 7 134. Textual variants: 4'.(1) A: -sig-; I: -si-. (2) A: *šap-tu*; S₁₀: *na-du-ù*. 6'.(1) A: *zal-la*; I: *za-al-la*; S₁₀:]-zal. 7'.(1) A: -la; I: -bi. 8'.(1) A: -[a]n; I: -an-na. 10'.(1) A: *í[d]*; I: *íd-da*. 13'.(1) A: *gu-*; I: *gú-*. 16'.(1) A: -bu-; I: -bi-. 18'.(2) *šar-bat*; I: *šar-ba-tum*. 19'.(2) A: *'e-ru[-]*; I: *e-ri*. 21'.(2) A: -bir-; I: -bi-ru. Source I inserts four half-broken entries between 12' and 13'.

15 Cf. *gú-tar anše = ú-re-e si-si-i* *Igituh* I 380, between a passage dealing with bricks and one dealing with excavations, and the passage *4R* 18* 6:8f. = *KAR* 91:5'. This use of the term *gú-tar*, elsewhere *kutallu*, is somewhat peculiar, see the section *gú-tar* in *Izi* F 134-42.

16 In all probability, line 48 did not start with *ég* and thus does not belong to the section. Both Ugarit and Emar have another entry *ég = iku/ikku*, immediately before the *pa₅*-section.

17 Although there it may be simply part of a field name; see also *BRM* 3 119:5. Ur III scribes write mostly *HU-ba-na* and the word is often mistransliterated *hu-ba-na*, e.g., *UNL* 1/1 no. 241ff., and *PSD* B 123b, end.

18 The restoration [*pal-g*]u in *Aa* VIII/1:123 remains questionable.

19 Cf. *iku mišru* in *MB kudurru*, *MDP* 2 pl. 21 ii 12; 6 pl. 10 iv 18.

20 Perhaps the writing *ba-la* in *TENS* 23 stands for *ba-al*.

21 The reverse has only *gišapin u₄ 1-šè*, and the edge *mu 2 kam*. The connection of this with the obverse is not clear.

22 The last line, viii 8 = 240, reads *á-a-bi*, as copied, according to collation (courtesy I.L. Finkel), not *á 2-a-bi*, as expected.

- 23 The author does not state what kind of work is, in his opinion, involved. His value of 1 *ninda* = 5.93 m (instead of 6 m as in the present study) and his interpretation of KA-a-DU may result in apparent disagreements when comparing his results with the ones given here.
- 24 See Rowton 1967:272f.
- 25 The editor reads 10 instead of *bùr* at the end of lines 7, 9, and 11, and the beginning of line 4 should read [2]0 instead of 10.
- 26 In any case and regardless of destination, Ur III documents show that cut reeds were handled tied in bunches (*sa*) with several of these (from 10 to 25, with an average of 15) forming a bundle (*kilib*). These numbers are valid only for common reeds; special types were handled in different amounts. Thus a bundle of *gi-zi*-reeds usually had 4 or 6 bunches.
- 27 Written ZI+ZI.LAGAB or ZI+ZI.ÉŠ; for the reading, see AOS 49 (1987) 49.
- 28 See already MSL 9 184, for a previous updating.
- 29 Cf., still, Izi E 275.
- 30 For the problems involving *šu*-KIN, see JCS 28 186. As for *ú*-KIN, note the homographs *ú*-kin = *naptanu* "meal," and *ú*-kin-kin = *rīta šīte'ū* "to look for pasture," for which the reading kin is assured.
- 31 There is a scribal error in the computation of v_u in the first entry. The tablet gives 594, but the expected value is $444 \times 1.5 = 666$. A difference of $7 \frac{1}{2}$ gín.
- 32 Note that the values marked by an asterisk are 1 sar too low; it may be a modern copyist's error (tablet not collated), and that there is some error in the fifth entry too, since v_b and v cannot be equal by definition.
- 33 See now Waetzoldt 1990:3f.; he disagrees with the traditional explanation, but reaches no unambiguous solution, proposing as the most plausible "Verbindungsgraben/Stichkanal/Entlastungskanal."
- 34 Civil 1965: 121, and, recently, Liverani 1990.
- 35 Therefore the word under discussion is possibly identical with the *dúr* "end" discussed in JNES 43 285f. In view of the Pre-Sargonic writing ŠEŠ-*dúr* (see below) one could even assume that the *sa* part is an archaic phonological indicator and not a component with semantic contents. Note also the existence, not too well established, of a loan word *šudurru* in Akkadian, see CAD Š/3 343a s.v.
- 36 The term *sa*-KU appears, besides the passage Lambert BWL 257:8f. (= P7.82), in *sa*-KU kalag-ga ^dnu-nam-nir-r[a ...] PBS 10/2 14:13 (Išme-Dagan text). In *Šulgi* G 12 (CT 36 26f.) sig₄ zi nam-tar-ra abzu sa-*dúr*-ra níg-kal-kal-la-àm "the true bricks of destiny, the *apsu* ..., are most valuable," the intended meaning is likely to be "the rear part of the *apsu*" (with a brick dike). The passage kur dumu ki-en-gi-ta nu-zu-ba sa-KU kaskal-ba šu la-ba-gál-la-ba "in a foreign country unknown to the Sumerians, at the end(?) of the road, where there is no control" *Šulgi* B 362f. is unclear.
- 37 SET 259 explicitly writes a-šà íd lugal in line 2 (see also remark in RGTC 2 276), and a field name é anše is registered in UNL 1 no. 237f. Cases like ég sa-*dúr*-ra ù ég zi-DU a-šà FN Or 47-49 250 or ég sa-*dúr*-ra a-e gu₇ é lugal (= FN, UNL no. 273) are, of course, no exception either. For TENS 459, see 6.4.2 b.
- 38 Some of them, e.g., BIN 5 237, list multiple, unrelated tasks, such as harvesting, or transporting straw or barley, which, naturally, are not included here.

39 Examples of references to erosion are BM 105367 (MCS 4 10) and SACT 2 2:6, both in a kun íd-da; DAS 303 (formerly MCS 8 56), in levees; TENS 274, said of a field; a PS reference is VAS 14 100 iii 2 (see Bauer 1972 p. 56). The term a-e gu₇-a is often misread as a-e bu₆-a, mistaking a poorly written KAXGAR for KAXGÁN-tenû. Thus in PSD B 164, it is cited under bu B 3 "to drain (water)." An expression a-bu₆ does not exist, as far as I know. It is not clear whether a-e DU-a may, in certain cases, also refer to erosion.

40 In the MB Nippur map (Kramer 1956 fig. 81) there is an area within the city labeled igi 5-gál. Both forms, zag 5 and igi 5-gál, appear in Ai., the first in IV ii 58f., the second in II i 41 (interest rate), IV ii 36 (harvest share), and IV iii 6 (miksû-shares). There is surprisingly little information about field or crop division based on a 20% rate, but note that this is the interest rate in silver loans (in contrast to the 33% rate in grain loans). In TENS 393:8f.: one-fifth of the fiscal date yield is the rent of a palm tree garden: igi 5-gál-bi 0.3.1 (gur) apin-lá ⁹is₆kiri₆ PN, and in ITT 4 7085, a tithe and a fifth are levied on a certain number of sheep and goats.

41 The editor, see TENS Index p. 51, proposes to restore ég <sa-dúr>-ra, but x is definitely not RA, at least in the copy. One could, at the most, see in x a ligature of SA and KU, followed by A, giving sa-dúr-a.

42 The tablet could not be collated.

43 Interpretations, based on šeš "brother," have little chance of being correct. Even if my proposal turns out to be off the mark, the term clearly qualifies certain lengths of levee work. ŠL 331:27, 67 is correct.

44 There are instances of ég KU which may represent ég dúr, a form that can be easily confused with e-dab₅ "he took in charge." Note KU-KU íd-da in VAS 14 130 i 1 (AWL 2) and KU-KU ki-mah in DP 654 v 5. In this tablet the contrast between nu-KU in ii 2 and e-KU in iii 2 speaks for e- being the verbal prefix and since dúr requires the prefix ì- instead of e-, the form should in all likelihood be read e-dab₅. Examples are lú igi-nigin dil-dil e-dab₅ "(earth work which) individual 'professionals' took in charge" DP 644, end, and ERIN-ré e-dab₅ DP 654 v 6. However, in DP 654 iv 2 KU:e:KU-na-am₆ may represent ég KU-KU-na, i.e., ég durun-na. The matter requires further study.

45 Note that there are no OB references written SA.DUL, despite the transliterations in CAD A/1 90b. BE 6/1 46:18 and VAS 8 122:7 have KU like the rest. Note that KU and TÚG are still different signs at that time, and that the reading dul₅ belongs to TÚG, not to KU.

46 Add Gautier Dilbat 15, 16, 19, 20, 22, 23, 31; VAS 7 38; RIAA 255; Riftin 44.

47 Under certain conditions the two words can be considered synonymous; note in this connection the entries (du-ur KU) = šu-bu-rum, wa-ar-ka-tum in MSL 14 140:11f.

48 In other occurrences, zi-DU means "righteous" in contrast with erím-DU "evil" (see, e.g. Nungal 7, 11, 60). In a figurative sense sig₄ zi-DU means a "matching" brick (also known as half-brick) in contrast with erím-DU bricks; see Proto-Izi I 273, where the MSL edition has zi-da, but unpublished duplicates have zi-DU.

49 The text SAKF 7/8 29 is transliterated by its editor, p. 33, as including ég... zi-dè and is quoted this way in Sauren 1966:41⁶³. The copy, however, suggests something completely different. I would propose to read pa ku₅ gi-NE ÍL-gál en-du₆-ta gú 'idigna₁-šè.

50 The word giš₆kéš-du (Akk. mihru, irritu) "dam," common in PS Lagaš (Ean 2 vii 10ff.; Ent 35 iv 2ff., vii 5ff.; Ukg 7 i' 1'ff.; see Bauer 1973) does not seem to be used in Ur III, where gi kéš-du designates the work of making reed bundles and má-lal kéš-du the making of rafts.

- 51 Sauren also proposes tentatively "am Tor gelegen," with ka standing for ká, a rather unlikely explanation, and mentions the possibility that it is an agricultural term referring to some soil quality, a more helpful suggestion.
- 52 This tablet writes once KA-DU in line 1.
- 53 An oblong orchard section of such an area, with a narrow end facing the water, would easily have a frontage of the size given by CT 3 35ff.
- 54 The orchard descriptions from the city of Ur, e.g., UET 3 1109 or 1368, do not label the land contrasting with ki-gál, and in Nippur the contrast is between tree-planted land (giš gub-ba) and KI.UD, NRVN 238 and NATN 497. For the moment, the term KA-a-DU seems thus limited to Lagaš.
- 55 This translation differs from the ones of Falkenstein, who takes ù as the conjunction, and Sauren 1966:74⁷⁶, who sees in this passage a reference to irrigation.
- 56 The total in vii 5 has KI.BAD instead of KI.UD. There is a KI.BAD in BM 14615 iii 25 with the area erased. This term, followed by field names or personal names or preceded by field names, is found, e.g., in ITT 3/2 5268; 6084; TUT 141 with sheep and in RTC 411:12f. with a field area. Its meaning is still unknown.
- 57 The entries included in this total are not clear since there are no explicit ones giving × iku ù. They have to be sought in i 18 and iv 3, in all probability.
- 58 Note a possible mun-ù, for mu-un-u₅, in Ebla, according to Krebern timer 1984:172. I would even consider mun-da-a, ibid. XIII 6, as coming from mu-un-da-u₅-a.
- 59 There is a variant u₅-má to this passage (see TCS 3 180f,) which, if correct, would invalidate there a translation "dry ground," I do not believe, however, that the variant is correct.
- 60 The dimensions of most of the nag-ku₅ along ditches are relatively modest. In this text only between 23 and 30 m³ of earth were needed for one reservoir, in ITT 5 6864 the volumes range from 15 to 75 m³. In contrast, Or 47-49 511 implies volumes of 4,320 and 1,512 m³, in what seems to be a large canal.
- 61 The earth volume is qualified by bar in ITT 5 6864.
- 62 The last equation from YOS 11 95:1; for the preceding ones, see lexical section of CAD *butuqtu* A.
- 63 In some cases, however, giš-hur seems to be a part of a watercourse; see ŠA 23 x 6ff.; VAS 14 30; and Rim-Sin's inscription Rs 27:36 [x] galam-bi giš-hur ha-ba-ak.
- 64 For instance, a liturgical series was titled a gal-gal buru₁₄ su-su "The great waters submerging the harvest," and a passage of *Hoe and Plow* (168ff.) has a description of a catastrophic flood, menacing the harvest.

7.2. The *suhúb*-Oxen (Comments to line 7)

7.2.1. LEXICAL DATA

7.2.1.1. Early Dynastic

The term *gud-suhúb*¹ is already found in the earliest stages of Mesopotamian cuneiform writing: in Animal List A, *suhúb* follows *áb* (line 10), *gud* (36), *amar* (62), and *am* (88).² The oldest attestation is in the Uruk recension of this lexical list where the term is written BAR.MUL (*ATU* 3 p. 90:10). The other ED sources of this list write also BAR.MUL (with BAR written AŠ in Fara). The Ebla syllabic recension (Krispijn 1981-82:47ff.; Krecher 1983: 180ff.) gives *áb ba₄-ru-um*, most likely a Semitic gloss, cf. *parû*.³

7.2.1.2. Old Babylonian

The Nippur Forerunner to Hh XIII (*MSL* 8/1 87, with the addition of N 6030) gives now:⁴

211	<i>áb-šar_x</i> (NE)
211a	<i>áb-ûr</i>
212	<i>áb-suhúb</i>

The OB Forerunner YBC 4679 vi 7ff. (unpubl.) has:

7	<i>áb-mu-3</i>
8	<i>áb-mu-2</i>
9	<i>áb-mu-1</i>
10	<i>áb-BAR.MUL</i>
11	<i>áb-zag-eš</i>

And a Susa lexical lentil, *MDP* 27 32 reads:

gud-šÚ.MUL
IB(?)-*gud*
apin-lá.

7.2.1.3. Canonical HAR-ra

The canonical recension of Hh XIII is very poorly preserved (source A does not exist anymore, only a poor copy is available), and the restoration in *MSL* 8/1 45f. is questionable; one could propose:

The Farmer's Instructions

314	gud-[a]	MIN <i>me-e</i>
315	gud-ṛid ¹	MIN <i>na-[a-ṛ]i</i>
316	gud-[s]uhub	<i>'(x)-x-x¹-m/ba-nu</i>
317	<i>(existence questionable)</i>	
318	gud-ṛx ¹	<i>[x-u¹?-la-nu</i>
319	<i>(vacat)</i>	
320	gud-sig	<i>up-pu-lu</i>

The x in line 318 (source B) *could* be s[uhub], so that there would be two successive lines with suhub. The traces in A are undecipherable and, without new sources, the passage is hopeless; even the number of entries in A is uncertain. The restoration *[kak-ka]-ba-nu*, in CAD K 44b s.v., for line 316 is a misinterpretation inspired by the logogram MUL. The restoration *[su-gu-ull]-la-nu*, proposed in the first draft of this commentary (Civil 1987), no matter how attractive, must be considered textually quite doubtful.

7.2.1.4. Readings of MUL

Besides the reading suhub (šuhub) of ŠÚ.MUL, Aa I/8:162-77 gives the readings suhul, iší, and sulgar. The corresponding Akkadian translations are missing and thus these values remain semantically unassigned; perhaps suhul is an error for, or a variant of, *sugul, compare *sugullu*. Other known meanings of the sign, in addition to "shoe" (*šuhuppatu*), are the related [1] *šuhuppu* "rim of a wheel" (Proto-Aa 140:1; [2] *sugullu* "herd" (Proto-Aa 140:3), and [3] *kabāsu* "to trample" (Ea II 280); the reading /suhub/ is explicitly given for all of them.

7.2.2. WRITING

It is quite possible that the logogram BAR.AN, or BARxAN, is a graphic simplification of BAR.MUL, see already Thureau-Dangin's remark in *ITT* 1 p. 6⁵. The form BAR.AN is found in the Early Dynastic lexical lists *MEE* 3 45-46 xii 13' and, probably, in *WVDOG* 43 43 xii 6, in both cases qualifying anše. With anše one finds BAR.AN from the Sargonic period to the end of OB, only in post-OB lexical lists does anše-ŠÚ.MUL appear. One notable exception is Susa, where in an archaizing OB list (*RA* 18 65 viii 2'f.) appears the oldest attestation of anše-ŠÚ.MUL. For BAR.AN in Ebla, see 7.2.3.4. In the meaning "shoe," ŠÚ.MUL is systematically abbreviated to MUL in Ur III as well in OB (*TLB* 4 68:9) and in Mari. The Susa list mentioned above, however, has already the form with ŠÚ in vii 31'. Qualifying gud, the lexical text *MDP* 27 32 has the form with ŠÚ. The Larsa texts discussed in 7.2.3.3 have ŠÚ, while Ur texts from the same date have MUL alone. Thus the difference between suhub and suhúb has only graphic import. The difference between BAR.AN and (ŠÚ).MUL, on the other hand, has semantic significance, even assuming that the two forms originally derive from the same sign. Both merge systematically only in the post-OB period.

7.2.3. ADMINISTRATIVE TEXTS

7.2.3.1. Field Names with suhub

There is a field name a-šà gud-suhúb (and vars.) in Ur III Umma (*UNL* no. 407),⁵ Girsu (*ibid.* no. 408), and Nippur (*NATN* 988). It is the name of a threshing floor in *Or* 47-49 376: ki-su₇ gud!-suhúb. The reading suhúb seems assured by a writing with the determinative kuš in *BIN* 5 266: a-šà GABA gud-kušsuhúb, so far a hapax (*UNL* no. 328). In administrative documents, it may be uncertain at times whether it is a toponym or a descriptive label. The field name (with no kuš) survived in the lexical lists of fields: Nippur Forerunner to Hh XX-XXII 122f. a-šà suhub, a-šà gud-suhub. The passage is not preserved in the canonical recension, but a peripheral MB recension (*Emar* 6/4 no. 557:32'ff.) has: a-[šà su]hub = A.ŠÀ ka-ab-ba-[s], a-[šà x]-gír = A.ŠÀ ki-ib-s[u], a-šà gud-x = A.ŠÀ ki-ib-s[u]. Not too much weight can be given to the translations of these toponyms, made by inexperienced scribes far away from the place of origin.⁶

7.2.3.2. Ur III Administrative Texts

Aside from the field name, the gud-suhúb are mentioned, not very frequently, in Ur III in different kinds of contexts. See Maekawa 1986a:88, 1990:129ff.

7.2.3.2.1. Grain Distributions

Texts about production or distribution of grain list amounts for this type of oxen.

(1) AAS 83 is a tablet whose subscript reads [še-giš-UD.D]U-a gán [...] gud (no room for suhúb). It has twelve sections listing amounts of barley (and, to a lesser extent, emmer and wheat) followed by farmers' names. Each section ends with totals and the name of a šabra. The last entry, before the total, in eight of the twelve sections, is *n gur še gán gud-suhúb a-šà FN*; in four of the cases a lesser amount of emmer constitutes an additional entry. The amount of barley in these entries is from 1 to 2% of the total in the plots from the en-me-kár-field, and from 27.7 to 40% for barley and 4 to 11% for emmer, in the plots from the lá-mah-field. Given the nature of the document (for še-giš-è-a, see comments to line 105), one has to assume that the amounts of grain labeled še gán gud-suhúb represent the yield of certain parts of the field.

(2) BM 26198 (*ASJ* 8 109f.) is a tablet, with no subscript preserved, which lists very large amounts of grain followed by personal names and grouped by temple names. Maekawa 1986a:88 persuasively argues that it is a record of yield of all the Girsu estates in the year Šulgi 46. In ii 6 are listed 2167 *gur* of barley gud-suhúb, and in iii 7f. 60 *gur*. The tablet has large portions missing and one cannot establish the ratio of the amount of grain for these oxen to the grain totals, but, from the preserved data, it cannot be more than 22% in the first case, and not more than 1.45% in the second.

(3) *TUT* 5 has the subscript iku uru₄-a kilib-ba šabra sanga-ne, and thus gives the total field area cultivated by the officials of the most important Girsu estates in the year Šulgi 47. For each estate the tablet lists the area classified by the amount of seed + fodder needed for its cultivation, the wages of hired hands, and a number of calves. At the end (viii 19ff.) the

tablet has an entry 39 (gur) á gud hun-gá (not found in the other sections), and, instead of calves, it has: 2.0.0.2 šila še amar na-kab-tum, gud-suhúb. It is difficult to say exactly to which part of the text the subscript gud-suhúb applies; at the most, I believe, viii 12-20, perhaps only 19-20. In the first hypothesis, the area covered would be 12.4% of the *total* land listed on the tablet.⁷ If the subscript applies to 19-20, the text would record only the fact that some oxen had been, or *will* be hired, and that these oxen are classified as gud suhúb.

(4) An undetermined amount of grain, described as še gud-suhúb, is transported, together with grain from a particular threshing floor, to the silos of the town of Apišal in *TCL* 5 5669 iii 12ff.

7.2.3.2.2. *Animal Inventories*

Head counts of animals, bovines but at times including some equids, include the designation gud-suhúb.

(1) Wengler 49 (*Or* 2 [1920] 60f.) is an inventory of a relatively small number of bovines of various ages, but with no amar included, grouped under farmers' names. The animals are said to be gud-suhúb šà du₆-kù-ge.

(2) *TIM* 6 55 is an inspection of animals, at least 77 bovines and 19 equids, classified as gud-suhúb and belonging or assigned to thirteen different farmers in the neighborhood of Umma. It is not clear whether the subscript: kur₇-ak gud-suhúb(AN.AN) engar 13-kam, refers only to the oxen or whether it covers also the equids; it is not very likely, since the grand totals separate the áb hi-a from the anše hi-a.

(3) *AAS* 62 lists 16 gud ga and 5 anše ga with the subscript amar ga gud-suhúb ka-kéš-rá, i.e., "to be administratively included with the *suhub*-oxen."⁸

(4) *UTI* 3 2093 is an inspection record (kur₇-ak gud suhúb) of cattle, accounted for, or lost to be returned. All bulls are qualified by giš, and all cows by máh. *UTI* 3 2101 lists adult cattle, with the same classifications as 2093, together with some milk calves, and a number of equids, including foals; all of them are called gud suhúb gub-ba.

7.2.3.3. Old Babylonian Texts

A group of lists of workers (*BIN* 7 103, 114-138, 147; *YNER* 4 no. 50; *UET* 5 222, 722), all dating from the reign of Sumuel (1894-66 B.C.), mention erín suhub, an abbreviation, it appears for erín gud-suhub, the form that is found in the three oldest texts (*BIN* 7 103, 114, and 116). Two texts (*BIN* 7 147 and *YNER* 4 no. 50) write lú suhub-ba, confirming the reading of the logogram. There is a local writing variation in these texts: the ones from Larsa write suhub, the ones from Ur, suhúb. These workers are listed alongside boatmen and brick carriers.

7.2.3.4. Ebla Texts

In the Ebla texts, the logogram BARxAN appears alone or preceded by ERÍN and/or UGULA or LÚ. Pettinato 1980:33, and Grégoire 1981:390f. have claimed that it designates "mercenary soldiers", but Fronzaroli 1979:68f. and Archi 1980:36f. have conclusively shown that the term must designate animals.⁹ Although an unpublished lexical text (TM.75.G.5313), quoted by Archi, gives successively áb, BARxAN, ERÍN BARxAN, and another text (*ibid.* no. 5) lists BARxAN

7.2. The suhúb-Oxen

together with oxen on the same tablet (reasons that could make attractive the hypothesis that *BARxAN* is a bovine),¹⁰ the evidence available at present seems to support better a meaning "donkey," despite the superficial resemblance with the *erín-suhub* of Larsa (7.2.3.3),

7.2.4. MEANING

7.2.4.1. Oxen of the herd

The data examined in the previous sections provide no obvious general solution. The place of the term in the ancient Animal List A suggests that it is a fairly general designation for a bovine. There is no evidence, at least in Ur III, that it designates an animal performing a determined task. Despite the statement that "agricultural techniques applied in the plots of "booted oxen" were clearly different from those of other types of land" (Maekawa 1986a:88),¹¹ all that can be inferred from the texts is that these animals were assigned amounts of grain, that some groups of animals, cattle (including bulls, cows and calves), and perhaps also equids, were classified as such, and that they were not very numerous. They were assigned to farmers,¹² but in exactly what conditions is not known. At present, it seems best to derive the meaning of *suhúb* from its equation with Akk. *sugullu* "herd;" compare *áb-gud-hi-a* = *sukullu* Practical Vocabulary Assur 327. Relatively small plots, qualified of *gud suhúb*, yielded barley, rarely emmer. The *suhúb*-oxen would be grazing oxen, wandering in the fields, assigned, at least in some cases, to farmers but not actually performing work in the field. Cattle, and sheep, were allowed not only in lands left fallow, but also, under certain restrictions, in land with young barley plants. These plots can still yield a reasonably good harvest, after controlled grazing. "The object of this pasturing is two-fold, viz. to feed the animals and to prevent lodging of the crop" (Poyck 1962:52, and see comments to line 47). Amounts of grain distributed to these animals could represent feed supplements. The designation *suhúb* would contrast, on the one hand, with penned cattle of the state herds (this would explain why they are not mentioned in the large number of cattle accounts from Drehem). On the other hand, it would contrast with the animals actually working, i.e., an unhitched animal, left to graze, would be classified as *suhúb*, as would be other bovines in charge of a farmer which for one reason or another were not put to work, except perhaps in an emergency. The Akkadian translation *kabāsu* "to trample" may nevertheless be an indication that trampling was very significant for the agricultor. In the Larsa texts, although the brick carriers and boatmen in the context would seem to make preferable some translation related to transportation (pulling wagons?), the meaning "herd," in a figurative sense, seems nevertheless acceptable. Whether the semantic borders of the term were the same as in Ur III, cannot be determined.

7.2.4.2. The "Boots"

The reasons to assume that *suhúb* means "boot" when associated with oxen are not strong. If the reading is certain from the complement *-ba* in 7.2.3.3, and from the isolated writing with the determinative *kuš* mentioned in 7.2.3.1, the meaning is less well assured. The determinative can be an example, not unparalleled, of scribal fancy and does not necessarily imply a meaning "boots," since the word *suhub* has other meanings too (see 1.4).¹³ Instances

of wooden and, of course, iron "shoes" for oxen are known (Langdon 1986, Steensberg 1988), but there are no traces of them in Mesopotamian documents. The only possible indication for the use of leather protecting oxen hoofs in Mesopotamia would be BM 111759 (*MCS* 1 54) which lists 28 sheep hides for 7 plowing oxen, i.e., four for each animal. The type of text, however, suggests that the hides were used for yoke attachments, and that the number four is accidental and without significance.

Footnotes

¹ Transliteration with /s/ follows Proto-Ea and Proto-Aa 140; all later sources have /š/. MUL = suhúb, ŠÚ.MUL and BAR.MUL = suhub. The distinction between BAR and ŠÚ is in this case purely graphic; see 7.2.2. An initial ŠÚ, amissible in certain periods, appears with some other signs, e.g., šudun, sumún, šagan, LAK 387, 395, 396; since these signs have values with initial š or s, ŠÚ may have been used as some sort of phonological indicator.

² A convenient edition of this list can be found in *MEE* 3 pp. 51ff.; the line numbers above are the ones of this edition.

³ As already suspected by Krispijn 1981-82:50. Other likely Semitic glosses appear in lines 17, 18, 32, 33, and 42. The Sumerian logogram corresponding to Akk. *parû* is precisely ŠÚ.MUL, with reading kunga. Note that the meaning "mule" of Akk. *parû* is likely to be secondary, compare Ar. *para* "onager."

⁴ On this passage, see Civil 1988.

⁵ A plan of this field can be seen in *JCS* 24 149 no. 1.

⁶ The interpretation of this passage given here differs from the one proposed by the editor of *Emar* 6/4. The x in the last entry may be a misunderstood suhub, or even zukum. Note *g'èn-bar* = *šuhuppu*, *g'èn-bar-dùg-ga* = MIN Hh VIII 20f.; the first entry appears as *g'èn-bar-zukum*, the second unchanged, in the Nippur Forerunner to Hh VIII-IX 124f. These terms designate some undetermined type of reed thicket.

⁷ The totals in x 10f. omit the term gud-suhúb. Could it be that a-ša has been omitted before it and that it is just a toponym? Since the passage has an arrangement somewhat similar to that of texts [1] and [2], this probably is not the case.

⁸ At least the meaning of ka-kéš seems in this case to be "to assign," "to organize in the same class." Compare amar gud anše DU-DU apin-še ka-kéš-rá in *AnOr* 7 264:32, and the similar AAS 63. That ka-kéš in these contexts does not always strictly refer to hitching to the plow (as apparently does in *Gudea St. L* ii 5'ff.) is shown by u_g udu gi^{udu} kungal-še ka-kéš-rá *ITT* 2 3772, and sheep nam-en-na-še ka ba-ra-kéš *SAKF* 7 36; *SET* 130:478f. For the mixing of bovines and equids, note 3 áb máh 15 gud giš 2 anše *SAL* máh de₅-de₅-ga gud diri ka-kéš-rá *AnOr* 1 76:3ff.

⁹ See still the discussion in Butz 1981:336f. He disagrees with Archi, but for reasons other than the ones adduced by Pettinato and Grégoire.

¹⁰ In which case one would have to consider BARxAN an abbreviation of SUHUB.

¹¹ Interpretation partly supported by me as late as the draft of the present study (Civil 1987), see comments to line 7.

¹² An unpublished text from the Heritage Museum at the University of Illinois, lists šà-gud gud-suhúb(AN.AN)-me (courtesy S. Kang).

¹³ *Proverb* 2.65 ka₅-a gír suhúb am-ma-ke₄ gír-ni bí-in-gub nu-ub-sì e-še is best translated "the fox put his foot over the footprints of a wild bull and said 'it does not fit'," and, in my opinion, does not contain any allusion to "oxen boots."

7.3. The *gišal-šub* and Related Implements (Comments to line 10)

7.3.1. The Terms *al-šub* and *al-ù-šub*

In lexical sources, the term *gišal-šub* is found only in Old Babylonian (*MSL* 6 148:62; *PBS* 11/2 63:1'ff.; *SMEA* 18 pl. 3:6'). Afterwards it is replaced by *gišal-ù-šub* whose earliest occurrences are Middle Babylonian, in Emar (*Emar* 6/4 no. 545:185') and in Ugarit (Hh V-VII 201, unpubl.). This is the only form found in canonical HAR-ra and must be considered incorrect. It is the result of a confusion between the name of a possibly obsolete tool and the expression *gišal ù-šub* "hoe (and) brick mold" (found, e.g., in *Enki and the World Order* 334). In HAR-ra, the entry *gišal ù-šub* closes the section dealing with the al-hoe and is immediately followed by the lines treating the brick-mold *ù-šub*. This proximity may have contributed to the confusion.

7.3.2. *gišal-šub*

Besides FI 10 and the OB lexical occurrences mentioned in 7.3.1, the word appears in *Dialogue* 3:65: *al-ak-dè gin-na gišal-šub hé-da-gál* "you should bring a *šub*-hoe and go to dig (in the fields, instead of trying to write tablets)," said to an incompetent scribe. It is thus obviously a digging tool. The incorrect form *gišal-ù-šub* has the Akkadian translation *šelib/ptu*¹ in Hh VIIA 166. It can be safely assumed that this would also be the translation of the correct form *gišal-šub*. A synonym of *gišal-šub* is *lub-bi* (Hh VII A 242), judging from the translation *šelib/ptu* common to both.

7.3.3. *giš/uruda|lub-(bi)*

This word appears, with determinative *giš*, in Hh VIIA 242ff.: *giš|lub-bi = šelib/ptu*, *giš|lub-bi-du = kursinnu*, *giš|lub-bi-du mu-sar-re = MIN musarê*,² followed by *gišnig-gul* "maul." With the *uruda* determinative, *uruda|lub-bi-da* is found, with no translation, in the Nippur Forerunner to Hh XI 168, between the copper implements *dur₁₀* 'ax' and *ha-bù-da* 'hoe'. It is found in context in é á zi-da *uruda|lub mè ku₅-ku₅ ki-bal-šè/a, a-gàr sig₇-sig₇-ga-bi íb-dun-dun* "the temple, a faithful arm, a battle-ax cutting down the rebel country, digging its green fields" *Temple Hymns* 520.³ This passage shows the double function of the tool, a weapon and an agricultural implement. The digging of the fields, however, must refer here not to regular cultivation but to the destruction of the planted crops of the rebel land. In a description of the goddess Ereškigal it is said that *umbin-si-ni uruda|lub-bi-gin₇ an-da-gál* "she had her fingernails like *lub*-axes" *Inanna's Descent* 234.⁴ An Ur III tool list includes 110 *gišnig-gul*, 76 *gišsag-lum|lub*, 12 *gišgín*, *ITT* 3 5408.

7.3.4. *uruda*_{dur}₁₀-al-lub

This combination of *dur*₁₀ "ax" and al-lub is attested in: *urudakak dur*₁₀-al-lub-ni mu-na-dù "he made for him his spears and *allub*-axes" *Gudea St. B* v 43; and in a description of a battle field: *uruda*_{dur}₁₀-al-lub⁵ sag mu-un-da-sig-ge-ne *giššukur gu*₇-*gu*₇ *gištukul-za-ha-da umun*_x(BAD) im-me-r[e-d]ul₉-du[l₉-l]u "the *allub*-axes smash the heads, the lance points penetrate, the *zahada*-maces become all covered with blood" *Inninšagurra* 46 (modified). Its use as a weapon is confirmed by: ki mè-ka *uruda*_{dur}₁₀-al-lub-àm "in the battle field there is the *allub*-ax" *Song of the Hoe* 85. Another aspect of this weapon is revealed by YOS 4 246, an Ur III text which lists two *uruda*_{dur}₁₀-al-lub together with thirty-eight *šu-nir* "standards," "emblems," and one *eme-gir* "dagger blade." Each of these objects, presented to Šara, is associated to a number of sheep and their wool.⁶ The term appears in the name of a (fortified?) building: mu *gišig ká é dur*₁₀-al-lub-ka-šè '(copper parts) for the door of the gate of the "house of the *allub*-ax"' *Orient* 16 75 107.

7.3.5. Related Terms

The word al-lub appears also without *dur*₁₀ and without determinative: 1 *zú al-lub gištaškarin* "one blade of an *allub* (made) of boxwood" *DP* 57 vi 4. From the context, it must designate there some object for domestic use. Further examples are *BIN* 8 388 ii 1 (with no al-), and *FT* pl. xlv AO 13204 ii' 8. A term lub-bi is listed, as a cut of meat, in Hh XV 248f. and translated by Akk. *kursinnu* "animal leg" and by *kamkissu* (meaning unknown). A part of the scales is called *giš-rín lub-bi = lubbu, qablû* Hh VI 110f. The similarity with al-lub "crab" remains for the moment unexplained, as does any possible relationship with al-lu₅-háb "a type of net."

7.3.6. The Tool

The word *dur*₁₀-al-lub clearly designates a type of war ax, and the same can be said of lub-(bi). The latter designates also an agricultural implement, as shown by *Temple Hymns* 250, and Hh VIIA 244. The term al-šub is a synonym al-lub, judging from their common Akkadian translation, but it is not clear whether the two words are built on two different roots, or whether they are two (phonological or graphic) variants of the same lexeme. The association of al-šub with *níg-gul* in Hh VIIA, and with *níg-gul* and *gín* in *ITT* 3 5408 (note the gloss *lum*) identifies it as a percussion tool of the ax family. The Akkadian translation *kursinnu* "hind leg of an animal," and the presence of the component al "hoe" provide a clue to identify the shape of the implement. Note how the curved handle of the al-hoe bears a striking resemblance to an animal's leg. A weapon with such a curved handle is the ax with a semicircular blade that can be seen, for instance, in the victory relief of Naram-Sin (Strommenger 1962 fig. 115, lower right). The stele agrees with the Ur III text YOS 4 246 in showing this ax, mounted on a long handle and provided with wool streamers, being used as a standard or emblem. This type of ax, known only from Iran and S. Mesopotamia and mostly before OB times, has been studied by Hillen 1953:214f., see also Deshayes 1960:244f. and pl.

xxxiii. As agricultural implement, one can imagine a hoe with the edge of the blade on the same plane in which the tool is wielded, in contrast with the regular hoes which have the edge of the blade at an angle of 90° degrees to the handle. The text *DP 57* and similar ones may refer to a piece of boxwood shaped like the semicircular blade of this type of ax, used as a knife or scraper. As part of the scales, one can think of a bow-shaped pair of arms, again of a shape similar to the al-hoe handle, or to an animal leg.

Footnotes

- ¹ This form is identical with the unattested feminine form of *šelibu* "fox." Even if *gišlub-bi*, another translation of *šelibtu*, shares the logogram LUL with *ka₅-(a)* "fox," the meaning of *šelibtu* as a tool name is not necessarily "vixen." The similarity may be accidental; note, however, that tools with names of animals are frequent in the history of technology.
- ² Source B has the incorrect, or perhaps half-correct, gloss *lu-ul*, omitted by the new dupl. BM 78111. This text gives also *kur-sin-du*, instead of *kur-sin-nu*.
- ³ TCS 3 48, completed by Ni 4117 (*ISET* 1 97) and N 6509 (unpubl.).
- ⁴ Cavigneaux 1992 has recently pointed out a syllabic version of this line in VAS 10 118 ii' 2': [š]u-si-ne li-bi-d[u ...]; I do not know the reasons for his tentative definition "une sorte de tuteur."
- ⁵ Vars. omission of determinative, and *gišal-l[ub]*.
- ⁶ The standards get one *mana*, the dagger blade, two; the *allub-ax*, gets one sheep and one goat (*UTI* 3 2285:59ff.). This wool was no doubt used to make streamers to attach to the emblems, not as an "offering" as it is commonly assumed, e.g., Waetzoldt 1972:29, although the sheep from which this wool was obtained received a special treatment which may very well have implied offering or sacrifice (cf. the term *udu šu-nir* CT 32 41 i 18; YOS 4 267; etc.).

7.4. The Verb kab/káb--dug₄/di and Related Words (Comments to line 21)

7.4.1. PREVIOUS INTERPRETATIONS

The term KAxA-dug₄-ga has been recognized for a long time in Ur III administrative tablets, but its interpretation has to be considered far from established as shown by the following sampling of opinions: Reisner 1901:27: "eine Art Abgabe(?); Pinches 1908:25: "'to pronounce (dugga) consecrated,' and if so, the first component NAG, possibly means 'to give a drink', 'to water', i.e. to pour a libation over;" Scheil 1913:2 takes it as a toponym "la bien arrosée," adding that perhaps it is "une dénomination commune, spécifiant un mode de culture;" Jacobsen 1939:12: "with some reserve I propose 'for brewing purposes,' lit. 'preparation of drinks' (du₁₁/kunnû 'to prepare,' nag = 'drink');" Pettinato 1967:213 takes it as a term "der eine besondere Gegebenheit der Landunterteilung zum Ausdruck bring; bis jetzt ist er noch nicht zu erklären;" Salonen, 1968:419 "Feld, Garten bewässern;" Pettinato 1969:16⁶ leans toward Salonen's translation and adds "beide Elemente nag und dug₄-ga sind ferner mit šaqû ša eqli geglichen;" Sauren 1969:62⁵ "bewässerte Parzellen." This interpretation has been generally followed, see, for instance Maekawa 1987a:35 "irrigated domain plots." Durand 1983:126¹² has proposed a quite different meaning "perte." ¹

7.4.2. LEXICAL INFORMATION

Corrections to some misreadings and misinterpretations in the edition of Kagal D Section 8 (MSL 13 247) provide the starting point for a better understanding of KAxA—dug₄.² The assumption that the only reading ending in -b of a KA-compound is sub(KAxGA), made in MSL 13 247 ad 12', is obviously incorrect as shown by the value ka-ab = KAxA Proto-Ea 315 and [g]a'-ab = KAxA S^b I 258. The reading káb, or gáb, for KAxA is certain since, in addition to the syllabary entries, for practically all entries to be discussed one can adduce parallel passages which replace KAxA with kab/gáb.³

7.4.2.2. The section Kagal D 8:8'-12' (MSL 13 247) is seen now to consist exclusively of entries with initial KAxA and must be restored as follows:

8'	[ká]b	li-ti-ik-tum
9'	[ká]b	e-de-pu
10'	[ká]b-dug ₄ /di	la-ta-a-kum
11'	[ká]b-dug ₄ -ga	ij ⁿ -du
12'	[ká]b-dug ₄ -ga	[k]a'-ap-tu-[ku-ú]

Remarks

Line 9': the restoration KAxIM in *MSL* 13 247 was based on the assumption that the Akkadian verb was *edēpu* A "to blow." The entries Nabnitu F ii 16'f. [k]ab = *edēpu šá qē*, [gu?]-kab = MIN *šá* MIN prove that it is *edēpu* B, a verb that designates an unidentified activity performed on, or a condition of flax or strings.⁴ Curiously enough, it may have been a similar confusion that induced an ancient scribe to assign to KAxIM not only the meaning *nappahu* but also *latāku* in Ea III 106f.

Line 10': the possibility of a restoration -di is suggested by the parallel *MSL* SS 1 12 D ii 11'-13'. The form with *dug₄* is found in Group Vocabulary A iii 9:⁵ kab-*dug₄-ga* = *la-ta-[k]u*, repeated, for reasons unknown, *ibid.* 45: kab-MIN (= *dug₄-ga*) = *la-ta-ku*. Note also [KAxA/kab-d]*ug₄-ga* = *li-ti-ik-tum* *TIM* 9 87:13 (see *ibid.* p. [xiii] sub 87). Whether KAxA/kab can be correctly used alone as a verbal root with the meaning *latāku* is unlikely, but it is attested as such in lexical sources. An OB interpretation of an ED lexical list gives 1 gín KAxA = *ši-iq-lam la-ta-kam* CBS 11319+ i 19. A further instance of the absence of the auxiliary *dug₄* can be seen in [ka-a]b SAGxA = *la-ta-k[u-um]* *MSL* 14 138 r. 13'.⁶ SAGxA is an artificial logogram, created by analogy with KAxA, and seems to be found also in Ea III 36.

Line 11': *indu* is a variant of *imdu* "tax," see discussion in 7.4.8.

Line 12': despite the skepticism expressed in *MSL* 13 247, a restoration [k]a- is inescapable and a word *nagduqqû* (AHw 711a; Salonen 1966:60, 344) does not exist; see already CAD K 191 *kaptukkû*, where the passage Hh X 18ff. should be added to the lexical section, see 7. The term is already lexically attested as kab-*dug₄-ga* in VE 235, with no translation.

7.4.3. ADMINISTRATIVE TEXTS

7.4.3.1. Verbal Forms

The compound verb káb—*dug₄/di* is attested in administrative texts, all of Ur III date unless noted otherwise, in the following forms:

- (a) finite forms (1) *hamtu*: káb ba-*dug₄*, káb ba-ab-*dug₄*, káb nu-*dug₄-ga* (the latter can also be the non-finite negated form of *b* 1), káb nu-ù-*dug₄*, kab in-na-an-*dug₄*, (2) *marû*: not attested.
- (b) non-finite forms (1) *hamtu*: káb-*dug₄-ga*, as a predicate or in a nominal form, mostly as a genitive but also as head of a genitival construction, (2) *marû*, with suffix -dè: káb-di-dam.

7.4.3.2. Texts

The following passages are arranged according to the commodities involved. For translations and discussion, see 7.4.4.

(1) Orchards, dates, fruits

- (a) ⁹¹⁵kiri₆ káb-*dug₄-ga*: dates *TUT* 268, *MVN* 7 299 (= *ITT* 4 7900); date palms *TENS* 393 (cf. 395), *MVN* 4 67, *MVN* 9 183:9, *MVN* 12 182, *TJAMC* pl. 53 IOS 43, *RA* 10 pl. 1, 6N-T426, etc.; figs *UET* 3 1087:9' (broken, must have included other products); subscript of an account of an apple orchard in A 5701:30 (8.2:8.5.1).

(b) káb-dug₄-ga ^{giš}kiri₆: dates CT 9 18:41, 74f., UET 3 1086:13; TMH NF 1-2 316 is a tablet basket label which includes tablets of gun-gar-ra ^{giš}kiri₆ and káb-dug₄-ga ^{giš}kiri₆.

(c) zú-lum káb-dug₄-ga: TENS 392:66, ŠA lxviii:51 vi; 13.2.4.6 silà zú-lum gur káb-dug₄-ga mu inim-gál-la-šè PN₁-(e) nu-un-ág PN₂-e nu-um-ta-è mu-bi-šè PN₃-ra na-an-na-zi CTNMC 26; 18 dubsik (zú-lum) 15 silà-ta káb nu-dug₄-ga MVN 9 60; 11 zú-lum gur-điri káb-dug₄-ga AnOr 7 355.

(d) varia, with káb-dug₄-ga: dates, peš-mur₇, zé-na, níg-ki-luh TUT 114 iv 8ff., v 10'ff., viii 1'ff., 115 iii 6'ff. iv' 2'ff. (all date palm products except for giš-pèš-dur₅, included twice); dates and pomegranates (unpubl. tablet, courtesy Kang); figs OLP 8 15 no. 11.

(2) Fields and grain

This is the only context attested, before Ur III, in ED, Sargonic, and Gudea texts.

(a) a-šà/iku káb-dug₄-ga: before Ur III: MVN 3 115 (= Amherst 13) Gudea, year 10th (and texts of the same type); Nikolski 2 70, MCS 9 276, and OIP 14 163; in Ur III: TUT 8 v 1ff. (contrasting with iku tab-ba), CT 10 13 iii 1, CT 1 18f. v 15, 49 iv 1, AnOr 45 no. 60 x 17ff., no. 61 xii 9; no. 59, see sub c).

(b) še (and other cereals): káb-dug₄-ga: already in ED in TSŠ 860:1, 4 (without -ga), 16 (kib_x [written MI] káb-dug₄-ga); 5 še gur gur-bi káb-di-dam NATN 381; 102 še gur lugal 41.1 zíz gur zíz-a káb-dug₄-ga-bi igi-3-gál-àm in-til zi-zi-dam MVN 9 93; é še káb-dug₄-ga tak₄-[a] CHÉU 41:7; grain a-šà dumu-lugal anše gud káb-dug₄-ga tak₄-a MVN 11 63:4f.; 1440+[x] še gur lugal gur-bi kišib PN-ka íb-ra káb-di-dam YOS 4 70; of special interest is AO 8091 (MCS 8 65):⁷ *101.2.0 še gur lugal, ki PN₁-ta, PN₂ šu ba-ti, še a-šà FN-ka, še-bi káb *nu-dug₄, še-bi zabar-e igi bí-dug, tukum-bi, zabar-e káb da-ga ì-*bé, še-bi káb-di-dè

(c) with mention of animals: a-šà káb-dug₄-ga ki-gud n-kam: UET 3 1349 (n = 20), 1350 (n = 4?), 1354 (ki¹-gud 14-kam), 1355 (ki-gud¹ 2¹-kam, collated); a-šà GN káb nu-ù-dug₄ inim PN-ta anše gud-bi gíd-dam ITT 3 5559; 22,436 iku še-bi 3,209.0.0.5 gur gud-bi 28 im-ma-bi a-šà káb-dug₄-ga 11,250 iku še-bi 2,470 gur gud-bi 10+[x] im-ma-bi 2+[x] anše gud gíd-da gi-nè-dè UET 3 1358; anše gud káb-dug₄-ga é-[x] šabra-bi-ne [x]-bi si-[...] MVN 11 74; 7 gud su-[su] 487.4.0.8 1/3 síla še gur lugal lá-ì káb-dug₄-ga PN₁-(e) su-su-dam MVN 12 320; iku káb-dug₄-ga gud nam-dumu ensí ù gud nin-đingir ^dba-ú AnOr 45 no. 59 vi 9ff.;⁸ 4 gur še gán lú-sag₉ engar im káb-dug₄-ga-ka mu-gál "(he declared:) I put 4 gur of grain from the plot of the farmer L. in the kabduga-tablet" ASM 68:4' (unpubl.). ASJ 4 116 iv 1f.; [x š]e gur [še]-bi káb-dug₄-ga (rest broken) 6N-T 138.

(3) Cereal products (bread, beer, flour)

4.2.1 kaš gin gur 5 ninda-zì gur kaš-bi káb-dug₄-ga kaš 1 gur-ta 10 (síla) ba-ra-tur ninda-bi ba-lá ba-ab-si UET 3 1114; (broken) kaš-bi káb-dug₄-ga kaš ba-ab-si ninda-bi ba-lá ba-ab-si AnOr 7 257; 0.2.5.9 síla kaš didá 0.2.4.3 < síla > kaš gin {1?} ^{dug}kur-ku-đù kaš didá káb nu-dug₄-ga UET 3 879; 535.0.3 še gur še-bi 1 síla-àm káb ba-ab-dug₄ zì-bi 1 1/2 gín ba-sìg še-bi 13.3 gur íb-ta-tur NATN 372:17ff.; 673 bappir sig₅ gur šà-bi-ta 60-àm káb ba-dug₄ ki-lá-bi 6 ma-na 7 1/2 gín BE 3 100:27ff. (ibid. pl. vi); different types of flour kišib dili-a níg-àr-ra-bi káb

nu-ù-dug₄ *TUT* 267:9f.; 28 zì gur lugal káb ba-ab-dug₄ 15 sìla-bi-ta [zì]-sig1 5 sìla-àm [i]m-ma-ra-è *TÉL* 28; *UET* 9 1158 i 3' (broken context, bread).

(4) Onions

ṛ30¹ sum-sikil za¹-ha-tin¹ gur šà-bi-ta ba¹-rí-ga 1-àm káb ba-ab-dug₄ 6 sìla sum-àm im-ma-ta-è *ITT* 3 5206; 39^{ab}absin sum-sikil káb-dug₄-ga-bi 12 1/2 sìla-ta sum-sikil-bi 1.3.0.7 1/2 sìla gur *YOS* 4 307; 1 sag sum-sikil gur lugal káb-dug₄-ga-bi 0.2.5 BM 13512 (*BSA* 3 41).

(5) Fats (i, ì-nun)

57 sìla ì-nun dug-bi 3 káb nu-d[ug₄-ga] 6N-T 270; 15 sìla ì-nun dug-bi káb-di-dam *AUCT* 1 458; 1 gud 2 am ... ì-bi káb ba-ab-dug₄ *MVN* 13 579.

(6) Water

lú-gi-na a íd-šál-la ì-in-è ensí-ke₄ é-gal-la di-da kab in-na-an-dug₄ "L. had diverted water from the Šalla canal, the governor ... to him in a trial in the palace" *YOS* 4 1:1ff. (Falkenstein *Gerichtsurkunden* 1 1403).

(7) Varia

Ash wood sticks: 3690 sa giš^{ma}-nu šà-bi-ta 55 sa káb ba-ab-dug₄ 1 gú giš^{ma}-nu gal ì-gál-àm *MVN* 1 105; in accounting: im káb-dug₄-ga *ASM* 68:4'; diri káb-dug₄-ga *AnOr* 7 355, see 1 c); lá-ì káb-dug₄-ga *MVN* 12 320, see 2 c. níg-kas₇-ak gud su-su ù lá-ì káb-dug₄-ga *STA* 27 viii (see also i 3, 17, ii 7, etc.).

7.4.4. MEANING

A simple inspection of the quotations from administrative texts collected in 7.4.3 shows that káb—dug₄ has nothing whatsoever to do with irrigation. It is an operation connected with measuring or counting practically all types of commodities. If references to grain and its derivatives are more numerous than the ones to other products, such as wooden sticks, it is because the archives deal much more often with the first than with the latter. As it will be increasingly obvious from the following discussion, an interpretation based on Akk. *latāku* "to check," "to verify" fits perfectly well the texts. In the following discussion, numerals in brackets refer to the texts quoted in the preceding paragraphs.

7.4.4.1. The Operation

The starting point will be *MVN* 1 105 [7] which can be translated "3690 bundles of ash wood sticks, 55 of them (bundles) were examined, they contained 1 talent of large ash wood sticks." A sample of bundles (ca. 1.5%) is examined to ascertain how the actual contents agree with the nominal size of the bundles. In *BE* 3 100 [3], a large amount of beer-bread (bappir), measured by volume, is inspected and it turns out that sixty pieces of it weigh 6 *mana* 7.5 *gin*.⁹ The káb-dug₄-ga operation could verify not only the measured or counted commodity, but also verify if the measure itself was up to standards: "its (of the barley) *gur*-measure is marked with the seal of PN, it has to be checked" *YOS* 4 70 [3]; similarly in *NATN* 381 [2.b]. In *AO* 8091 [2b] too, there are doubts about the measure: "this grain has not been checked, this

grain has been verified with a (not officially gauged) copper measure; if he declares this copper measure to be correct,"¹⁰ the grain can then be (legally) checked," or "can then be (considered) checked." In other words, some grain could not be considered properly inspected because it had been measured with an "unofficial" measure; if this measure is officially approved, then the grain has to be measured again. The results of the inspection, other than the measured value, are not given in some texts but are made explicit in others. For instance, *UET* 3 1114 [3] says that 1330 *sila* of ordinary beer and 1500 *sila* of bread were checked "each *gur* of beer is 10 *sila* short, the bread is more or less (correct)." For "to be short" the texts use the verb *tur* in the forms *ba-ta-tur* or *ba-ra-tur*.¹¹ The phrase "it is less (*ba-lá*) or it is more (*ba-ab-si*)," corresponding to Akk. *Itir imṭi*, to indicate an approximate value is traditional in the administrative language of Ur III and OB texts; see *CAD* M/1 431b *maṭû* 1b. It also appears in *AnOr* 7 257 [3]: "the beer was more (than the correct value), the bread more or less (correct)." The texts use also the verb *è* (*im-ma-ta/ra-è*) "to come out," as in *ITT* 3 5206 [4]: "900 *sila* of *zahatin*-onions,¹² 1 *bariga*-measure (= 60 *sila*) of them were examined, 6 *sila* of onions 'came out'." Similarly, in *TÉL* 28 [3] "28 royal *gur* of flour were examined, out of 15 *sila* of it, 5 *sila* of refined flour 'came out'."¹³ What "comes out" is 1/10 of the original measure in the first case, 1/3 in the second. The precise meaning of *è* is not completely clear, but the texts give the impression that a qualitative and/or quantitative verification of the commodity, rather than a quantitative verification of the measure itself, is involved. The verb *è* indicates the amount of *net product* obtained after processing or cleaning. In the first passage *ITT* 3 5206, one could assume that the lot of onions included useless leaves and/or rootlets and that the edible part amounted to only 1/10 of the total. Or, perhaps, that most of the shipment was in poor condition and only 1/10 was acceptable. In the second text, *TÉL* 28, it seems that flour is tested to see how much high quality flour can be obtained from it, presumably by sifting. This seems to make better sense that to assume that *è* is here the opposite of *tur* and means that the effective amounts were 1/10 and 1/3, respectively, above the nominal ones. In *YOS* 4 307 [4], 39 onion beds are checked and it turns out that "their examination (gives) a rate of 12.5 *sila* per (bed), their onions are 487.5 *sila*" ($487.5 = 39 \times 12.5$). In conclusion, the test designated by káb—dug₄/di refers to the act of verifying to what extent: (a) a measure agrees with its legal standard, (b) a measured amount of a commodity fulfills certain qualitative or quantitative conditions, or (c) the effective yield of a crop compares to the estimated yield. It thus differs from ág which designates simple measurement.

7.4.4.2. Its Consequences

When an amount had been found to be short of its nominal value, the provider of the commodity had to make good or "return" (*su-su(g)*) the difference. This follows from *MVN* 12 320 [2 c]: "7 oxen (have been) returned, 487.4.0.8 1/3 *sila gur*, deficit (result) of the káb-dug₄-ga-inspection have to be repayed by PN." Apparently, plow animals could be pulled out (*gíd*) of a field in penalty for failing to have this inspection done: Ur-Igalim, scribe of the oxen, was in charge of a certain field, but "he did not made (submit to) the verification (káb nu-ù-dug₄); by order of Ursagga, donkeys and oxen have been pulled out" *ITT* 3 5559 [2 c]. In any case, there is a certain connection between the inspection of a field (or more concretely of its yield) and the plow animals, as shown by the rest of the passages quoted in 2 c. There are still some

unanswered questions in this matter, and further research is needed. One of these questions is the use of the term "ox" (gud or ki-n-gud) as some sort of agrarian measure; another is whether the systematic estimation of cereal yields (not to be confused with field surveys) is precisely expressed by káb-dug₄-ga, and, if so, whether some texts without this label are in fact instances of the same type of fiscal activity. Similar considerations apply to accounts of onion beds in Pre-Sargonic documents, and date palms in Ur III, with their rather standardized but unrealistically low "yields." These are fundamental but complex economic questions which cannot be dealt in the present, mostly lexical, study.

7.4.4.4. Its Authority

It remains to be determined who performed these inspections and under what authority. The immediate agents must have been the scribes, as shown by *ITT* 3 5559 [2c] and [3] where a dub-sar gud-10 seems to be responsible. In *CT* 9 18, an inventory of the possessions of Abbamu, the ensí-gal, there are listed two amounts of dates; while the first (lines 37ff.) is labeled ^{giš}kiri₆ káb-dug₄-ga-ta, which may mean "from inspecting orchards" as well as "from inspected orchards," the second is said to be káb-dug₄-ga ^{giš}kiri₆ gír-su^{ki} "inspection of the Girsu orchards." One has thus reasons to ask whether the governor, besides having the power to order these inspections, perceived a certain amount for them, in other words, whether there was some fee or tax involved. In any case, governors or their relatives are mentioned several times in connection with káb-dug₄-ga; besides *CT* 9 18, they are mentioned in *MVN* 3 115, *AnOr* 45 no. 59, etc. Note especially *YOS* 4 1 [6] "L. had diverted water from the Šalla canal; the governor verified (the matter) in a trial in the palace." The text continues saying that L. informed the governor that he would not come to the palace and that he would make restitution of the water illegally spent. Since the case required an evaluation of the amount of diverted water, the use of the verb káb—dug₄ is particularly appropriate. From a literary passage it appears that the *nimgir* official was the authority's agent supervising these inspections, see 7.4.5.2 c.

7.4.5. LITERARY PASSAGES

7.4.5.1. Early Dynastic Texts

There are two literary passages, admittedly of difficult interpretation, where the term under investigation is nevertheless unambiguously present:

- | | | | |
|-----|-------------------|--------------------------|--------------------------------|
| (a) | GiŠ ba-gi-rí BU a | ga-dug ₄ -ga | <i>ARET</i> 5 20 x 7 = 21 xi 5 |
| | giš.dim | kab-dug ₄ -ga | <i>OIP</i> 99 278 iv 15 |

- (b) kab-dug₄ kab-dug₄-ta *OIP* 99 255 viii 9'f. (om. by the dupls.), followed by GAR GAR šè gar-gar-gar.¹⁴

In the first passage, all seems to point to a predicate function. Perhaps the line could be interpreted starting from the equation gi-dim-dim = *qan urulli* = *ša bāqili* "a reed implement of the maltster" (perhaps some sort of sieve or filtering mat) *Hh* IX 329 with *Hg.* VIII-IX 213.¹⁵ Since a late reference mentions *mê urul bāqili* "liquid from the filter(?) of the maltster" *AMT*

68 1 r. 2, one could venture to translate the line "the one who checks the water/liquid in the filter(?) of the maltster."¹⁶ In the second passage, one cannot tell whether it is a verbal form, or a noun; the second possibility seems more likely, but no proposal can confidently be made about the meaning. Both passages use kab instead of káb found in the roughly contemporaneous administrative text TŠ 860 [3.2.2b].¹⁷

7.4.5.2. Ur III and Old Babylonian Passages

- (a) dūg-tuku-me-en usu-mu im-zi-ge-en kaš₄-e káb-di-dè
 "I am fast, I summoned my strength in order to test my speed (I made a round trip from Nippur to Ur)" *Šulgi* A 39¹⁸
- (b) kišib-lá-mu-ù káb mu-da-[ab-d]ug₄ gud-KAK-gin₇ agà-bi-ta mu-gi₄-eš .
 "(All kinds of strong men come to me), I test my grip with them (and), I push them back like a ... bull" (in a passage describing wrestling in the palace courtyard) STVC 50 r. 10'f. (*Šulgi* C).

In both instances, the meaning "to test," "to gauge" previously inferred from administrative documents, fits perfectly well.

- (c) dug 1-sila-ta a káb-di-dè/da
 In order to test/check the water with a one-sila jar AOAT 25 160:264' (*Hendursagga Hymn*)

Although the passage is not without problems,¹⁹ it clarifies in part the administrative aspects of the control or inspection represented by káb—dug₄. The hymn depicts Hendursagga as the herald or town crier (*nimgir*) of the gods. As such, he not only makes legal announcements, but, as shown by the hymn, verifies legal transactions, making sure that shares and prices are reasonable, and conditions are met. The lines preceding the one under discussion refer to prosperity in cattle pens and sheep corrals, and to the proper submissive behavior of house servants, all previously objects of purchases whose legality has been verified by Hendursaga (lines 232'ff.). No other passage refers to "checking water" in the preserved text, but there are many allusions to canal waters. Considering that an Ur III court document [6] uses kab—dug₄, when speaking of checking the amount of diverted irrigation water, it is reasonable to conclude that this control was among the duties of the *nimgir*-official. The implications of the use of a one-sila jar are unclear; perhaps the implied meaning is "with great precision."

- (d) lú g₁š má diri-ga lú níg káb-a di-a ... níg-gig d₁suen-na-kam
 For the man of the boat going downstream to search things ... it is a sin against the Moon god.²⁰ *Proverb* 3.170

To understand this saying one has to realize that a ship sailing downstream had the right of way over one sailing upstream. This opened the way for the master of the former to impose conditions to the crew of the latter before letting its boat pass through. This abusive practice included, according to the text, an inspection of the cargo with, presumably, the request for a bribe. The correctness of this interpretation is confirmed by three other parallel versions of the text, OECT 5 35 r. 15, BM 80001 (CT 58 69), and BM 57994 (CT 58 68), all of which

mention explicitly the "man of the boat sailing upstream;" for instance, *lú giš má diri-ga lú giš má ru-ru-gú níg káb-di-dam níg-gig d_suen-na-ke₄* BM 80001 i 17'f.²¹ For the terminology, compare Hammurabi Code §240.

- (e) *kaš kab-dug₄-ga rí¹-nag d_sùd um-ta-è é d_sùd izi ba-ra-íl*
He/she drank the *k.* beer(?), Sud went out, (and) Sud's home caught fire. *PBS 13 22* (collated)²²

The passage is not clear, the preceding lines are broken and the agent of the first line remains unknown. Furthermore *káb-dug₄-ga* can be here a predicate or, can simply designate a type of jar, see 7.4.7.

- (f) *uru-bi-e-ne mu-bi ba-an-sa₄-a kab-dug₄-ga ba-hal-hal-la*
He allocated the *k.* to these cities he had named

or:

he named these cities and apportioned the controlled waters *PBS 5 1 ii 98*.²³

The first translation considers the first clause to be relative, the second, the takes *a*, after *-sa₄*, as a noun.²⁴ Since the following lines deal with the establishment and maintenance of canals, *kab-dug₄-ga* may here refer to the control of the rights to irrigation waters. This meaning, however, does not seem to fit lines 156 and 202 ("beyond all measure"?). Or do these passages refer to the *im/ndu* taxes? see 7.4.8.

- (g) *r^x₁-ru uru za-a-kam kab-di in-ga-ran-gar¹ [n]ibru^{ki}-a sag-kal kur-kur-ra-ke₄*
The ... of the city is yours, you have also established the *k.* in Nippur, preeminent over all the countries *N 4529:1f*

In this passage of a clear hymnic character, from an MB exercise tablet, one would expect a *hamṭû* form; note, however, that some sources in FI 21, have *káb-di—ak*.

- (h) *é-e kab-dug₄-ga rí¹ [ga]-mu-un-da-an-di-di-in* 3N-T344:19 (coll.)
[i]n-nin-e ga-ab-dug₄ hé-em-me-di-di CBS 8534 r. 7' (parallel)

This line, from an Inanna song, remains obscure and refers probably to a jar, see 7.4.7, and the first source could be translated "I want to come to the house with its *k.*-jars," or "with *k.*-jars of beer."

The literary texts have predominantly non-finite *marû* forms, only [7.4.5.2b] has a finite *hamṭû* form. All the passages, with the exception of the ones that may refer to the *kab-dug₄-ga*-jar, can be satisfactorily translated "to check," "to test," "to verify," like the instances in the administrative texts seen in 7.4.4.

7.4.6. FORMS WITH KA; KA WITH MEASURES

7.4.6.1. In FI 21, the two preserved Nippur sources have *KA—ak* while *A₃*, and most likely *A₂*, have *káb-di—ak*. Source *D₃* has an incorrect *káb-me*. The simple *KA* could very well be con-

sidered a graphic simplification (like the far from rare KA for eme) but the existence of a term ka, which designates a certain quantity in measuring processes, requires a closer examination. For the reading ka, see 7.4.6.3.

7.4.6.2. The two more transparent instances of ka with measures come from archives far apart in time, one is from Sargonic Adab, the other from OB Ur.

(a) The Adab account A 624²⁵ lists amounts of grain measured some times in gur-mah and other times in gur-si-sá. It turns out that the gur-mah differs from the gur-si-sá, in being a metrological standard slightly larger (0.06% in this instance). The difference between the two is the ka. (Zhi 1989:65-68). Not too distant in time from the Adab text is *BIN* 8 215:1f.: 70 še gur-sag-mah, 1.(2-0.0.1) ka gur-bi. This time there are no indications of the standard against which the ka difference is computed. Depending on whether a *gur* of 240 or 300 *sila* is used, the ka would be 2.08% or 1.95% of the total amount of grain, about 5.8 or 5 *sila* per *gur*, respectively. *EDPA* 47, probably a Sargonic letter, mentions 0.3 še ka gur-sag-gál, but again there is no way to determine the ratio.

(b) In Ur, centuries later, a group of accounts of perfumed oil deliveries (*UET* 5 602, 619-21, 632-33)²⁶ gives the amounts following the pattern *x* dug *y* silà ka-ba/bi *z* silà ba-lá.²⁷ The ratio *xy/z* is not a fixed one; in the average *z* is ca. 1.5% of *xy*, but can range from 3.4 to 0.4%, with some of the highest values assigned to the smallest jars. In the case of several jars of various sizes with only one ka given, it is not clear whether the ka value corresponds to the total or to each jar. Detailed statistics, taking the various possibilities into account, are irrelevant for this semantic study. Assuming that ka has in this case a meaning similar to the one in the Adab text, it can be assumed that it represents the difference between the nominal capacity of the jars and the effective amount received and measured by the agents of the recipient institutions, which are several cultic centers. The verb ba-lá indicates that the difference is negative.²⁸

(c) For the intervening periods the instances of ka are extremely rare. The term was not a current one in the huge Ur III administrative archives. One example is *BRM* 3 81:5f., a text dated from Šulgi 44: [1]7 gur 'x' gur zabar ka-bi 0.2.2.4 silà. In the supposition that the amount restored is correct,²⁹ the ka amount is ca. 8.5 *sila/gur*. In any case, and despite the incertitude in the total amount of grain, the ka must here represent the difference between the nominal value of the amount delivered and the value obtained by measuring it again, with a more "official" bronze measure. Another, undated, Ur III text which may be germane to the discussion, if ga there stands for ka, is *NATN* 578: 48 še gur, gur 1 2 silà ga-ta "at the rate(?) of 2 sila of "ga" per gur."³⁰ See still *UET* 3 38:1f.: 'x'+2 1/2 silà še ka-a-aš ba-gi PN-šè itu-da 0.2.5 silà su-su-da, which could be translated "x+2 1/2 sila of grain were established as a ka for (-šè) PN, to be returned at a monthly rate of 25 *sila*" (follow oath and witnesses).

7.4.6.3. In measuring, the ka should not be confused with the sag, even if the amounts involved are often comparable. The sag was originally, in my opinion, the difference between

a measure filled level to its rim, and a measure with the grain piled up on top.³¹ This follows from passages like *x* (gur) gur-ba *y* silà-(àm) sag ì-gál "*x* gur, there is a 'head' of *y* sila per gur" BE 3 104 pass.; 60 gur PN, gur 60 silà-da-ta, sag gur-ra-bi 1 gur "60 gur for/from PN, (measured) with a 60 sila pot, the 'head' of these gurs (amounts to) 1 gur," i.e., 5 sila per gur NATN 104. A case of 10 sila per gur is TRU 374. The Sargonic text MAD 5 24 implies a sag of 11 sila per gur.³² A reasonable corollary is that the term gur-sag-gál means a gur which includes the extra amount of "head," i.e., the additional grain added every time the measuring container is used. The relationship between ka and sag becomes clear if one imagines measuring the same amount with two containers, *a* and *b*, of slightly different capacity. If *a* > *b*, and *b* is used to measure the amount in *a*, *b* will have a "head" (sag). But if *a* < *b*, and *b* is again the container used to measure the amount in *a*, a certain amount will have to be added to reach the rim (ka) of *b*. The texts tend to consider the ka a negative difference, but sag a positive one.

7.4.6.3. In conclusion, ka and káb—dug₄ are two different things, the former is a quantity, the latter a form of measuring. It is quite possible, however, that the determination of the size of the ka, was the result of a verification which may have very well have been called káb—dug₄. It is even possible that a verb ka—ak existed alongside káb—dug₄, and with a similar meaning "to gauge"³³ Or is KA in all these cases simply an abbreviation for kab? Could KA alone be read kab? cf. Nippur variants in the text of FI 21.

7.4.7. THE káb-dug₄-ga JAR

7.4.7.1. In some of the passages quoted above, including the one from the Ebla vocabulary [7.4.2.2] and at least one ED literary passage [7.4.5.1b], one cannot tell if there is a verbal form or the noun designating a jar. In later texts, the presence of the determinative dug can remove the ambiguity.

7.4.7.2. The main lexical passage for this jar is Hh X 18ff. where it is translated by *kaptukkû*, *mašqûtu*, and *rîbu*. Line 24 gives dug.0.0.2 (glossed ba-an-2) = *kaptukkû*. This presumably gives its common, standard(?), size of 20 sila, or 1/15 of a gur. In Akkadian, *kaptukkû* is sparingly attested from OB to LB, see CAD K 191a s.v. The second translation (lit. "drinking utensil") may be a scribal reinterpretation of the Sumerian word, reading it as nag-dug₄-ga; in any case, the Akkadian word is attested only with the meaning "potion." If the typical capacity of the jar was 20 sila it would make a rather unwieldy drinking vessel. Nothing is known about the last translation, *rîbu*, provided with several Sumerian descriptive synonyms (dug ka-sal-la, dug ka-dagal-la) in lines 20ff.

7.4.7.3. In Sumerian contexts, the word seems to be attested but once, among other clay vessels, in a Nippur Ur III inventory which lists 16 dug káb-dug₄-ga, between 48 dug GI-gunû and 120 dug a-nag-[n]ag.

7.4.8. NEO-BABYLONIAN *imittu*

One of the Akkadian translations of káb-dug₄-ga mentioned in 7.4.2.2 was *indu*, which may be taken to represent *imdu* (compare *amtu/andu*, *himtu/hindu*, etc.). The dictionaries list for *imdu* a meaning "tax, impost" (CAD I 110a s.v. 2a), "Jahressoll" (AHw 375b s.v. 3b). The word is attested a few times in NB Uruk. It is however the related *imittu* which has the greatest similarity with the káb-dug₄-ga of centuries earlier, see CAD I 125a *imittu* B for discussion and bibliography.³⁴ Do both *imdu* and *imittu*, designate the same institution? If they were to turn out not to be the same thing, one can always suppose that an original *imdu*, clearly polysemous, transferred one of its meanings to another form of the same root. Needless to say, the continuity in the designation does not guarantee that the institutions of Ur III and Late Babylonia were completely identical.

Footnotes

- ¹ Translations like "taxer" in Sigrist 1983:63, depend on previous drafts of these pages, see, for instance, Civil 1978:228, and Klein 1981:209. Parenthetically, this survey of interpretations offers a sobering lesson to the Sumerian lexicographer. The scholars who operated only from the context, Reisner 1901, and, partly, Pettinato 1967, came closer to the correct interpretation than those who sought an etymological explanation. On the pitfalls of etymology, see the observations in Civil 1975:149. Durand, by analyzing numerical data from *UET* 3 1114, came somewhat closer than his colleagues to the truth.
- ² See already *MSL* SS 1 39.
- ³ See Steinkeller 1985:196 for the reading *káb* in Old Akkadian.
- ⁴ This meaning of *káb/kab* applies no doubt to *CT* 50 61, a Sargonic list of ropes following the pattern *x éš-murgu gíd-bi y gi y' kùš z káb*; the totals are 11 for *x* and 181 for *z*. In *Nikolski* 2 42, from the same period, the apparent *éš káb* is possibly to be read *zì káb* (abbreviated for *káb-dug₄-ga?*). It is not excluded that the unknown meaning of *edēpu* B is somehow related to *latāku*, however, the numbers in *CT* 50 61 are not compatible with standard lengths of rope.
- ⁵ *CT* 51 168 (+) 79-7-8,60 (*CT* 19 7), and dupl.
- ⁶ Previously in *MSL* 2 154; the change in reading is based on collation
- ⁷ Signs preceded by an asterisk are the result of collation, courtesy B. Lafont.
- ⁸ The editor's restoration of <*gán*> at the beginning of lines 10f. is ill-advised.
- ⁹ Beer-cakes could be weighted, as well measured by volume, or counted. The text could be understood as saying that one or sixty of the bread pieces were checked. Since it seems unwieldy to measure by volume bread chunks of more than 3 kg, it is preferable to read the sign as sixty; this implies that beer-bread was handled in pieces of ca. 50 g. The matter, however, requires further investigation. It is known, from *Bab* 7 pl. xvi no. 12, that it took 1.25 sila of grain to make 1 mana of ordinary beer-bread.
- ¹⁰ I.e., legally approved, see comment to line 33. It is apparently the only instance of *káb* = *litiktu* alone as a noun. One could, of course, assume that *da-ga* stands for *dug₄-ga*.
- ¹¹ For the writing -*ra*- (<-*ta*-), here and in *im-ma-ra/ta-è*, of the ablative infix, see Gragg, 1973a:93ff. On the meaning of *tur*, see the remarks of Oppenheim, 1948 pp. 22, 79, and Sigrist 1979: 96.
- ¹² On this alliaceous plant, see Waetzoldt 1987:36ff. It is possibly *Allium desertorum*. *ITT* 3 5206 is read differently by Waetzoldt, loc. cit., but I believe that the corrections proposed above are valid because of the parallel texts; *sum.sikil A.HA.BA*, in my opinion, does not exist
- ¹³ Assuming, of course, that the broken sign before *KAL* has been correctly restored as [*zì*].
- ¹⁴ *WVDOG* 43 26 and *TSŠ* 294/239.
- ¹⁵ The line has a variant *gi-dìm-dim* *MSL* 9 184.

16 Assuming that *OPI* 99 omits a "water." The BU in the Ebla texts remains unexplained, does it stand for munù "malt"? It is quite difficult at times to determine if a sign is meant to be BU or MUNÙ in Ebla tablets. The uncertainties of the proposed translation hardly need to be underscored, specially since in the same composition there is the following line:

GIŠ ba-gi-rí	BU	kun-du-ga	ARET 5 20 ix 5 = 21 x 2
RU		kum-dug ₄ -ga	OIP 99 278 iii' 14

"the maltster's tool crushing the malt." RU replaces here giš.dim of the previous passage. It is likely that ba-gi-rí stands for *bāqili*. This line is found between kušú a-nim zi-ga "a crocodile(?) which comes up in stagnant waters" (for late literary parallels, see CAD A/2 63a *amirānu*; and note the crocodile skull found in Nuzi, see Starr *Nuzi* 38 and pl. 29d), and mǎ KI.UD (Ebla: GIŠGAL) ū-ra "sinking the boats in the shallows." kum/n-dug₄ means very likely "to crush."

17 In *OIP* 99 278, KAB is written like an inverted Á.

18 In many sources, most of them school exercises, it is impossible to tell whether the inscribed sign is A or GAR, but all sources I could personally check (V, TT, BBB, and HHH) have A. In CC one can read kab¹-da-du, and C has clearly ka[b-...].

19 The quoted line ends a row of subordinate clauses with -dè, but it is not apparent to which main clause they are subordinated to. The editors of the text, *AOAT* 25 160f., understood the line differently.

20 The reading KAxA, instead of KAxGAR of the editor, has been verified on 3N-T322 and on the BM parallel texts.

21 *Proverb* 3.170 and BM 57994 insert a line which reads in the former ugu túg-ga gal₄-la šu-dug₄-ga (BM 57994: šu-tag-ga) "to touch the female sex over the dress," and is to be taken as another instance of "illegal searching."

22 One could read dugkab-dug₄-ga too. This fragment is the end of some sort of tale on an exercise tablet.

23 A similar line appears six lines before, at the beginnig of an enumeration of five ante-diluvian cities.

24 See Civil 1969:140:98, 170. Needless to say, the present study disproves the incongruous interpretation I proposed there. Some previous opinions, which did not fare much better, are mentioned *ibid.* 170.

25 For the complete text, see Zhi 1989 loc. cit.

26 All dated texts in the group fall between Gungunum 26 and Abisare 9, 1904-1914 B.C. They are discussed in Butz 1973:39³, with a different interpretation.

27 The oldest text, *UET* 5 602, has ka ba-lá-bi z silà.

28 If this explanation is correct, it is curious that the difference is always in favor of the administration. Other interpretations are, of course, possible. The ka, for instance, could refer to a remainder, in the destinaries' hands, of a previous delivery.

29 There is room for only one sign and the restoration of the numeral 10 has to be considered open to doubt. Another possibility would be to read [2]+7, in which case the ka = 16 *silā/gur*.

30 One could translate also "48 *gur*, (measured) with a measuring basket (*gur*) of 0.1.0.2 *sila*." This translation, however, would leave the *ga* unexplained.

31 It is important to point out that the amount of "head" in a measuring container is function only of the diameter of the mouth, not of the capacity of the container itself. A rough formula, from some experiments by the writer, for computing the maximum "head" for a given mouth diameter is: height of the head $h = r/2$, where r is the radius of the opening. In the case of sag in weighing wool, see Waetzoldt 1972:30, 43, one has to assume that sag designates, by analogy, a supplementary amount as in a "baker's dozen," or in certain uses of German Zugabe. Thus in TCS 1 273:6f., 8 1/3 *mana* are added to a wool amount of 4 talents and 51 2/3 *mana*, to bring the whole to the round amount of 5 talents.

32 The last two texts are quoted in Zhi 1989:86. For sag-gál, see Civil 1976b:74. For an exhaustive study of the related term sag-íl-la, see Veenhof 1985:285ff., who provides ample information, with previous literature, about the problems arising from different standards, or variations within the same standard.

33 Otherwise, ka—ak, besides being a possible defective writing for eme—ak, means "to eat" (*patānu*). A verb KA—ak, glossed ga-a-ge, has in VE 221 a translation *ri-gi-tum*, and it is likely to stand for gù—ak = *rigimtu*. Another aspect that could be investigated: the ka under discussion could be the ka in (nig-kas) ka-lá of Ur III accounts, and in im ka-lá-dam TENS 484:9; the reading of KA as ka seems indicated by the late writing níg-ki-lá = *imtu* in Emesal Voc. III 49. It is, furthermore, conceivable that the word ka (if not = kab) could be etymologically related to ka "mouth of a container," see 7.4.6.2.

34 Add Kutscher 1973:363ff.; Stolper 1985:109, 114, translates "assessment."

7.5. The *túg-sig₁₈*-Plow (Comments to lines 30-31)

7.5.1. THE IMPLEMENT

7.5.1.1. The Three Plows

Three terms designate the implements used in FI 30f. for the successive preliminary plowings. The first one, the *gišbar-dil*, appears only in lexical contexts and in FI 30. The third one, *gištúg-gur₈*, is frequent in Ur III administrative documents, and is found in FI 31 under the form *túg-gur*; it does not seem to be found anywhere else. The main one is the second, *gištúg-sag₁₁/sig₁₈* (and its variants writings); it can be used alone to metonymically designate the others, e.g., *túg-sig₁₈ a-rá 2* in YOS 4 288. It is the oldest and more lasting term, it is written in various ways in different periods, and presents a number of problems discussed in this chapter.

7.5.1.2. In Pre-Sargonic Texts

The Pre-Sargonic texts from Girsu use the writing LAK 483-si-(g). This term was first recognized by Deimel in 1923 (*Or* 7 20, cf. Bauer 1972 p. 78) who saw in it an agricultural implement. It is found in the following contexts.

(a) Used as a finite verb, LAK 483—si(g), designating an activity performed by farmers or their oxen: (field area) PN sag-apin-ke₄ LAK 483 ì-si DP 595 iii 2ff.; PN LAK 483 ì-si numun ì-gar *Nikolski* 1 35 iii 1f.; gud gal-gal-e LAK 483 ì-si DP 599 i 4f.; še gud-e LAK 483 <ì>-si numun ì-gar AWL 9 i 2f. The verbal construction is found only in this time period, elsewhere the texts use periphrases with the verb ak.

(b) Used as a qualification of:

(1) Grain spent in the operation with no indication of how it is spent: še LAK 483-si-ga AWL 13 iii 2, DP 557 ii 3 (contrasting with numun-gar-ra); še LAK 483-si-ga gu₇ *Nikolski* 1 69 ii 4, 74 i 4, ii 3.

(2) Grain spent as oxen feed: še gud gu₇ LAK 483-si-ga DP 523 i 2, AWL 11 i 2; 9 i 4; še gud-rá gu₇ LAK 483-si-ga DP 524 i 2, *Nikolski* 1 75 i 2 (with še-numun še gud-rá gu₇); with the terminative postposition: še gud gu₇ LAK 483-si-ga-še AWL 12 i 2, 33 = AWL 10 i 2, 133 = AWL 14 iii 2, *Nikolski* 1 74 v 2; one case without si-ga is gud-e LAK 483 še gud gu₇-bi AWL 9 i 4.

(3) Grain spent to feed equids: še anše gu₇-dè LAK 483-si-ga DP 529 vi 4 (with še-numun še anše gu₇); with LAK 483-si-ga-še: *Nikolski* 1 78 i 2, 90 i 2, *AWL* 39 iii 7.

(4) Field areas: *AWL* 9 vi 1 (contrasting with numun-gar-ra), DP 595-97, *RTC* 74, *HSS* 3/1 39, and often. Note á 'ki-su₇¹-ta 12 sar LAK 483-si-ga e-bar "12 sar of preliminarily plowed (land) have been set aside from the threshing floors" *AWL* 4 iii 5, and similarly in vii 4f.

(5) In the name of the type of plowshare eme-LAK 483-si-ga which contrasts with eme-numun-na, the one used with a sowing plow: ŠA 27, *Nikolski* 1 288, *HSS* 3/1 49, *AWL* 85, 162 = *AWL* 79.

7.5.1.3. The sign LAK 483

The sign LAK 483 is attested in Ebla: "DÍM"-si-ga = *ma-'rī-nu'* VE 1295 (after APIN). No photo is available for checking the DÍM sign which can nevertheless be reasonably presumed to be LAK 483.¹ The Semitic translation may represent **maj(a)rīnu*, i.e., *majāru* plus the suffix *-inu*, added perhaps under the influence of the preceding *epinnu*. The sign LAK 483 disappears from the sign repertory in the Sargonic period and is replaced by the sign TÚG; it is therefore likely that the reading of LAK 483 is /tuk/.² However, as in other similar cases of graphic replacement of roughly the same period, if the semantic continuity is assured, the same cannot be always said for the phonological identity.³

7.5.1.4. Sargonic Texts

Two variants are attested in Sargonic texts: (a) túg-si-ga, found only in eme-túg-si-ga, listed next to eme-numun, in *TMH* 5 68, and, alone, in *OSP* 1 91; and (b) túg-tag, in *n iku* túg-tag *TMH* 5 66, at the end of a list of field parcels, and in *n še gur še gud-e gu₇ túg-tag* in *MAD* 4 62:5f. The last formula is almost identical to the Pre-Sargonic ones in 7.5.1.2 b, and the identification with túg-si-ga is supported not only by the general tag = *mahāšu*, but also by [x]-tag-ga = MIN (= *mahāšu*) ša [..], between [šu]-kin-ak-a and [giša]pin-šu-kin-ak-a, in *Nabnitu* XX 14ff.⁴ It is thus clear that LAK 483/túg represents the name of the implement and si-(g)/tag corresponds to a verb translated in Akkadian by *mahāšu*, as suggested already by the passages in 7.5.1.2 a, above.

7.5.1.5. Ur III Texts

In Ur III texts, the term is written túg-KIN or túg-ŠE.KIN. As in the name of the sickle, Ur III scribes write indifferently KIN or ŠE.KIN, the matter being largely one of local preference; Umma has mostly the form with ŠE, Lagaš the one without. The passage 12 gišKA (= zú or eme_x) túg-sa-ga-še a-ša GN *Nikolski* 2 430 confirms the reading sag₁₁ (or sig₁₈) as in OB times. The term túg-sig₁₈ designates only the first plowings, the last one is called túg-gur₈.

7.5.1.6. Old Babylonian Texts

In Old-Babylonian texts, the writing with the sign TÚG is the only one attested in eme-túg-sig₁₈, see *Code Hammurabi* §260:16; *TLB* 4 94:15f.; *PBS* 8/1 63; *YOS* 2 4:11;⁵ *YOS* 12 179:2, 6, 10 (here eme-túg-sig₁₈-ak-a), etc. Lexical texts (*MSL* 5 42:6) and literary texts have likewise

7.5. The túg-sig₁₈ Plow

túg: in-nin ^{giš}túg-sig₁₈ KI.KAL gál tak₄-tak₄ "the Lady, a breaking plow that opens the hard ground" *Innišagurra* 56.

7.5.1.7. túg-KIN and šu-KIN

A form with initial š (< t) appears for the first time in the peripheral Middle-Babylonian recension of HAR-ra: šu-uš-kin (with variant -gin₇) = *harbu Emar* 6/4 69:130', 138'. It may be explained as /šuske/ < *t/šu-sig, similar to /guske/ < kù-sig₁₇ (*JCS* 28 [1976] 183f.). A similar development explains the form tu₉-uš-ka in sources A₄ and B₄ of FI 31. Later canonical texts of Hh have simply šu-KIN (Hh V 123f.).⁶

7.5.1.8. The Implement

All the various writings just discussed designate, since ED times, only one tool, the breaking plow. The oldest evidence, confirmed by later sources, shows that there were two basic types of plow, ^{giš}apin, one for the preliminary breaking of the soil, the other for sowing. Technically, it was the same frame provided with two different shares. In addition, the sowing plow was fitted with a seeder funnel and ears, as discussed in the comments to lines 30ff. Minor adjustments in the breaking plow are indicated by the existence of two other terms, the ^{giš}bar-dil and the ^{giš}túg-gur₈/gur. The use of these latter words was never widespread.

7.5.2. THE READINGS OF KIN.

7.5.2.1. Lexical Sources

Proto-Ea 870f. gives only the two values gur₁₀ (confirmed by Hh XXIV 172) and kin (confirmed by S^b II 271). The corresponding passage in canonical Ea has not been preserved. Solely on the basis of textual variants, Cooper 1972:81ff., established the readings /sig/ and /sag/ for KIN; the first indication of their existence had been detected some years earlier by Sjöberg 1968:8¹ on a similar basis. To date there is no direct proof in lexical sources for the readings sag₁₁ and sig₁₈, except for the gloss ^ddi-sa-ag KIN in the god list An = *anum* VI 307. In any case, the evidence collected by Cooper, loc. cit., is sufficiently convincing. Additional confirmation is provided by many instances of graphic alternations in the preceding paragraphs. It remains to be established, however, when in other occurrences KIN is to be read sag₁₁/sig₁₈ rather than gur₁₀ or kin.⁷ Cooper's study shows the correct readings of gîr-sig₁₈ and gîr-sig₁₈-dug₄, as well as of zag-sig₁₈. Semantic considerations suggest that in cases where šu—KIN is to be translated by *sêru* "to rub," or by verbs of a similar meaning, a reading šu—sag₁₁/sig₁₈ is likely. Not, however, in the case of šu-kin-dab₅ "to kneel down," "to prostrate oneself" (*Civil* 1976b:185ff.). In the case of gi-šu-KIN, the peripheral MB recension (*Ugarit* Hh VIII-IX 279, unpubl. ms., and *Emar* 6/4 no. 580:9') gives gi-šu-uš-KIN which implies a reading gi-šu-sig₁₁. Other instances of šu-KIN, see *Civil*, loc. cit., remain unclear.

7.5.2.2. Words with KIN = sag₁₁/sig₁₈

Besides the case of túg-sig₁₈, and all the other lexical items mentioned in 7.5.2.1, the reading sag₁₁/sig₁₈ still applies to the following cases:

(a) ú-KIN "to apply reed bundles to a dike," as shown by the textual variant *ság* in FI 8; the term is discussed in detail in 7.1.2.

(b) *itu še-sag₁₁-ku₅*. The variant *še-sag-ku₅* of this month name has been known for some time in Ur III documents, see *AnOr* 13 88, 102, *AfO* 10 (1935-36) 362, *RA* 25 (1928) 45,⁸ and many more examples with *sag* (all from Umma) have been published in recent years. If the reading *gur₁₀* for KIN in the meaning *ešēdu* "to harvest" is given by the gloss in Hh XXIV 173, the reading of KIN in *KIN-ku₅*, with a similar meaning, is not provided by any lexical source.⁹ In view of the Ur III Umma variant one should probably conclude that KIN is to be read *sag₁₁/sig₁₈*, and the term is not exactly synonymous with *gur₁₀ = ešēdu*.¹⁰

Footnotes

¹ It is not excluded that the Ebla scribes faced with an unfamiliar LAK 483, wrote DÍM instead. In any case, I am fairly confident that the lexical entry represents the plow under discussion.

² The frequently accepted reading gízal (see, for instance, Rosengarten 1967 no. 367) goes back to a half-hearted suggestion of Deimel 1923:22, based on nothing but a superficial resemblance with BI+GIŠ. Deimel repeated the suggestion in *ŠL* 226, but did not include the pertinent references under this entry. A rare sign that could be confused with LAK 483 is the upside down ÚR seen in *BiMes* 3 15 vi 5; the context there makes it clear, however, that it is a mere graphic variant of úr "leg," to distinguish perhaps the right leg from the left one.

³ See remark in Civil 1987:234⁶; the skepticism expressed there about the reading of LAK 490 was, however, unjustified. An OB copy (CBS 14130 [*SLT* 11] + CBS 13922) of the ED list *WVDOG* 43 64 and dupl., has ga where the ED list has LAK 490.

⁴ The restorations proposed in *MSL* 16 180 are somewhat uncertain; line 14 may already have had *ša harbi* or *ša majāri*.

⁵ The copy in *YOS* 2 is not clear, but the edition in *AbB* 9 4 gives TÚG with no brackets.

⁶ The first to point out the variant túg/šú was Landsberger 1937:162. The evidence available at that time was insufficient, and he assumed that the form with šu- was the genuine one.

⁷ There are no means, within the present knowledge of Sumerian phonology, to decide which vocalization is to be adopted in each particular case; compare the case of the apparent synonyms sig and sàg, or sig₇ and sag₁₀, etc. The choice in the present book is arbitrary.

⁸ The date is there given by Scheil as an-še-sag-ku₅ which, if correct, would include an-še "ear of grain" instead of the usual še.

⁹ The reading of TAR is given in Aa III/5:37.

¹⁰ [This month name has been recently discussed in Cohen 1993:120ff. and Sallaberger 1993 9²⁴. Cohen rejects the possibility of /sag/ and proposes to continue to read kin. I do not find his arguments convincing. In 121² one could read : KIN-a su-ub-bu = sàg su!-ús-bu-ú! Sallaberger concludes that "ist die Lesung jedoch zu bezweifeln." His case of še-KIN-ra could be simply explained as še-KIN-<ku₅>-ra. By the way, the reading of ŠE (še or u₂₀) here is not completely certain either, see 1.2, note 1. The objection that in še-sag₁₁-ku₅ one would have a phrase with two verbs, is dispelled by the similar construction -ú-sag-zé in Fl 8. More substantial, in my opinion, would be the objection that sag₁₁ and sag end in a different consonant.]

7.6. The Furrows (Comments to lines 46, 55ff.)

7.6.1. LEXICAL SOURCES

The Sumerian terminology of the furrow is preserved in the following texts:

(a) Old Babylonian:

- L Proto-Lu 451a-462c (*MSL* 12 49, with additional sources CBS 6755 + CBS 4812 and CBS 13667).
- K Kagal F ii 78-89 (*MSL* 13 253f).

(b) Emar:

- E₁ 74121 r. last col. 9-20 (*Emar* 6/2 pl. 296).
- E₂ 74148c (*Emar* 6/2 pl. 375).

(c) Ugarit:

- U 20.132A+ (copy Nougayrol) and 22.431+ (photo).¹

These sources are not independent. It is clear from a comparison of the enumeration given in Proto-Lu with the text of FI, that the former derives from the latter. Emar and Ugarit are MB versions of Proto-Lu. From OB Proto-Lu the terms for furrows passed to Kagal F (also OB), with some omissions and additions. The following alphabetic list includes only the terms found in FI, leaving out the simple *ab-sín* "seed furrow." Some of the entries in Proto-Lu are slightly modified; new sources, or better knowledge not available when *MSL* 12 was published, allow for some improvements.

The word for "furrow" is written *ab-sín* or *absìn* (APIN). Less frequent or unusual writings include *ababsìn*, *abAPINSìn*, *ab-sù-na*, *a-ab-še-[en/in]*, *ab-si-im-(ma)*, etc. The reading of the first syllable as *ab-*, rather than *ěš-*, is strongly suggested by *a-ab-še-[x]* in *MDP* 18 61. In Ur III texts, there is a word written *e-si-na/i-si-na* which is the same as Akk. *išinnu* "culm." It should not be used to determine the reading of *ab-sín*. Note the passages: *a še e-si-na dug₄-ga* "(workers) to water the barley plants with grown culms" A 3305 (8.2:2.6); and *a-ša FN ì-si-na-ba udu ba-an-tu-ru-un PN šabra-àm nu-un-zu* "PN, being the *šabra*, did not know that the sheep had established themselves in the barley with grown culms of the field FN" MM 393. (unpubl.)

7.6.2. GLOSSARY

(1) ab-ki-iz (line 59):

B₃ iii 2 = *ap-ki-si-t[um]*, L 457, K 82 = *ap-ki-s[i-tum]*, in the last two instances preceded by *ab-sín*. For the verb *ki-iz*, see: *gú-ki-iz* = *ki-[iz-zu]* "shorn nape" Nabnitu frag. 23:6'; *gú-ki-iz-ki-iz* = *itašpuru ša amēli* "to be shorn, said of (the nape of the neck of) a man" Nabnitu IX 108, and *giš-e gú ab-ki-iz* = *išu šapir* 'a tree stripped (of leaves)' Kagal E 3:61. The translations *k/gazāzu* and *šepēru* suggest that *ki-iz* means "to trim, to clean (of hair, leaves, or vegetation),"² and therefore *ab-ki-iz* means "clean furrow, unobstructed by weeds."³ There is a word *áb-ki* in PS Girsu texts dealing with onion plantations (*Nikolski* 1 46 i 4; *AWL* 4 vii 5; *DP* 394 vii 3; 395 vii 4; *VAT* 4656 (*Or* 17 11); *VAT* 4733 (*Or* 17 17)). It could represent the later *ab-ki-iz* (see Bauer 1972 p. 83, and Selz 1989 p. 218, for earlier discussions).

(2) ab-sín-gilim-ba/ma (line 59, only in source A₂):

L 453, U 5 = *bi-ti-qì-tù*, K 79 = *pa-ir-ri-[ka-tum]*, *BRM* 4 33 iii 5 = *pa-ri-ki-tum* "crossing, transversal furrow." If the translation of U can be trusted, it may designate a drainage furrow at a right angle with the seed furrows. Cf. perhaps Steensberg 1989 figs. 29 and 30.

(3) ab-sín-si-sá (lines 55f.):

A₃ iii 1 = *išarātu*, L 452, U₁, U₂ = *išaru* "straight furrow;" in the text of FI 57, but not necessarily in other contexts, it means "vertical," rather than straight. See commentary to lines 57f.

(4) ab-sín-^{giš}šibir (lines 55f.):

L 454, K 81 = *hiršu*, similarly Nabnitu XX 228 and *BRM* 4 33 i 4: the term *šibir* designates a stick or staff, typically carried by shepherds (and by kings and gods as "shepherds"), ending in a curved end, i.e., a crook. This supposition is confirmed by the contrast with *si-sá* in lines 55f. The term *hiršu* is derived from *harāšu*, to be considered a by-form (Westsemitic influence?) of *erēšu/arāšu* "to dig a seed furrow," possibly with a still undetermined semantic difference, as often happens with doublets. Compare *šibir-[x]* Nabnitu XX 207 (in the section *harāšu*), and *búr* = *harāšu ša šer'i* Aa VIII/2:178.

(5) dur (line 54):

This term appears alone only in U 7 as *dur-dur* with the unexplained translation *it-ni-ku/qu*. The identity of the sign itself is in question. While some sources have a clear *dur*, others have *gú*, and still others *gu₄*; no Nippur sources of FI has *dur*, although this sign is clear in the lexical sources. Since only *gú* can explain the variant *gu₄*, it is here assumed that *gú* is the original writing of these compounds that seem to have been unfamiliar to the scribes. The writing *dur* comes perhaps from the paleographically certain *dur-tu-lu* in line 54), or it could be simply a synonym. As for the meaning, it is most likely to be the related "edges (of the furrow)" or "interval, ridges (between furrows)." Could the problematic *itnik/qu* of U be a misunderstood, corrupt derivation from *etēqu* "to walk along, to pass by," so that the term

7.6. Furrows

could mean something like "balk"? such a meaning could easily have been alternatively expressed by the semantically close gú "edge." Note the OB term *itiqu*, discussed in Stol 1988:177.

(6) dur-a-ab-tu-lu, gú/dur-tu-lu (line 57):

L 462, E 8 dur-EŠ-tu-lu = *iš-rum*,⁴ K 83 ab-sín-ab!-tu-lu = *ta-aš-qí-tum*; the latter translation can mean "raiser" (*šaḳû* A) or "irrigator" (*šaḳû* B). Both meanings are acceptable and a meaning "raised borders," surrounding the field to help in the irrigation (by immersion), is in itself possible. Wulf 1966:268 describes such border ridges, 25-30 cm high. The usual meaning of tu-lu, "to slacken," "to relax," does not seem to help much, and I cannot suggest anything for *išru*, except, if read *is-rum*, a derivation from *esēru* B "to block the flow of water." Since in line 57 the agent is "straight furrows," however, a better interpretation of the line would be to take gú/dur as "interval between furrows" (see 4), above) and tu-lu, after all, as "loose," in the sense of "sufficiently wide," the sense being that straight furrows make for regular, wide intervals.

(7) dur-TAG, gú-TAG (line 57):

L 455 (preceded by ab-sín). The meaning of this term and its Akkadian translation are unknown; the usual meanings of TAG, such as "to strike, to touch, etc.," are too vague to suggest a clear solution. The reading tag seems to be confirmed by the variant da in MLC 1359 ii 23/57 (5.2.2)

(8) gán-ku₅-da/rá (line 59):

L 458 (ab-sín-ku₅-da/rá, U 11 gán-na-an-ku₅-da = MIN (= *eqlu*?) *še-ri-ik/q-tù*, E 20 (gán-n[a]); meaning unknown, perhaps the Akkadian from Ugarit is an error for the poorly attested *teriktu* (AHw 1348b s.v.) "limits," "perimeter." Note that this word is included in the furrow-section of the lexical sources because it appears next to furrow names in FI and does not need in itself to represent strictly the name of a furrow.

(9) lu-gú (line 58):

L 462c, U 10 lu-ku₅ = MIN *la-ku-ú*, E 19 (lu-), K 84 ab-sín-lu-gú = *li-GI-it-tu[m]*. The Akkadian form presumably represents **la/ik/qû*, fem. *lik/qîtu*, possibly a loanword of lu-gú, and unrelated to either *leqû* "to take," or *lakû* "small." The passage sa-bi im-lu-gú-ne in *Lamentation over Sumer and Ur* 391, combined with sa ši/bí-lug-e : *šir'ānu izār* "twists the muscles" CT 17 25:24 (see Michalowski 1989:100), gives lu-gú = *zāru* A "to twist." The meaning "twisted," "crooked" fits perfectly FI 58, where ab-sín lu-gú is the object of the verb si-sá "to straighten out."

Footnotes

- ¹ In these MB Northwestern sources the scribes were unfamiliar with the texts and their translations are often unreliable.
- ² See also the remarks on *šuppuru*, in the commentary to line 2.
- ³ This form raises the question of whether /absin/ is a compound (/ab+/sin/), or whether ab- in ab-ki-iz is simply a frozen verbal prefix.
- ⁴ Does the EŠ come from a misreading of ab- as èš-? Note that in Kagal F the ab-sín-section is preceded by a section with AB-ru-um (probably èš-ru-um).

8. ADDITIONAL TEXTS

8.1. Letters on Agricultural Matters

8.1.1. INTRODUCTORY REMARKS

The three letters published here deal, one way or another, with agricultural problems related to water. All have been preserved in multiple copies of collections of letters used as an "exercise book" in Mesopotamian schools in Nippur and Ur in the XVIIIth century B.C. Their date cannot be precised further. Note, however, that the latest datable letters in this collection come from the reign of Lipit-eštar (1934-1924 B.C.). The toponyms and the title *ensí-sanga* (see remarks to individual lines for details) point to Nippur as the place where the letters were written. The first two are labeled B 10 and B 11 in the so-called *Collection B*, studied by Ali 1964. The third one is not part of the standard letter compilation, but it is found associated with some similar texts, see list of sources for details. No edition of it was available until now. All three letters are briefly mentioned in Rowton 1967:272f.

8.1.2. LETTER OF UR-ENLIL TO THE GOVERNOR AND SANGA (LETTER B 10)

8.1.2.1. Sources

A common sigla system is used for letters B 10 and B 11.

A	UM 29-16-139 + (Ali <i>Sumerian Letters</i> pl. 24f. and <i>ISCT</i> 2 114)	10:1-12; 11:10-15.
B	3N-T255 = UM 55-21-287 (Ali, op.cit. pl. 45)	11:1-15.
C	CBS 13968 (Ali, op.cit. pl. 39)	10:2-12; 11:1-15.
D	CBS 7849 (<i>PBS</i> 13 48) + Ni 4574c (<i>ISCT</i> 1 91) + Ni 9705 (<i>ISCT</i> 2 123)	10:1-12; 11:4-11.
G	U 16833 (<i>UET</i> 5 862)	11:3-15.
H	3N-T293 = UM 55-21-300 (Ali, op.cit. pl. 52)	10:1-12.
I	Ni 2796 9 (unpubl.) r. 1-5	10:9-12.
J	YBC 7175	

The complete description of source A, not given in full in Ali 1964, and incomplete in Girardi *Bibliography* 214, is UM 29-16-139 + N 3264 + N 3266 + N 3294 + N 3301 + N 3303 + N 3308 + N 3310 + Ni 9701 (*ISCT* 2 114). Source J was not accessible to the author when preparing this edition.

8.1.2.2. Text

- 1 ensí-sanga-ra ù-[na]-a-dug₄
- 2 m_{ur}-den-líl-lá [na]-ab-bé-a
- 3 pa₅ a¹-luh-ha²a i³-ib-tùm
- 4 m^den-líl-dingir¹-mu ù ha-an-za-mu
- 5 íb-sìg¹-ge-eš² mu-da-an³-kar-re-eš
- 6 m_lugal-an-né na-ab-bé-a
- 7 gá-e pa₅ 1-àm za-e pa₅ 1-àm ensí pa₅ 1-àm
- 8 a hé-mu-e¹-DU² bí-in³-dug₄⁴ nu-mu-un-še-ge-eš
- 9 erín íd zu nu ma pa₅ a i¹-ib-tùm²
- 10 gá-e¹ záh-bi a ma-ab-tùm²
- 11 á ma-tur 5 guruš 10¹ hu-mu-e²-ši-in²-gi₄-gi₄-ma³
- 12 a-ma-ru-kam

Textual Notes

3. 1) A: ì-; DH: a-. 2) CDH: -ha; A om. 3) CH: i-; D om.
4. 1) A: -á-; C: -lá-; DH -dingir-.
5. 1) ACD: -sìg-; H: -sì-. 2) CDH: -eš; A om. 3) CH: -an-; D om.
8. 1) ADH: -e-; C om. 2) ACH: -DU; D: -KA. 3) AD: -in-; CH om. 4) D: -ga; ACH om.
9. 1) AH: i-; C om. 2) A: -tùm; C: -túm.
10. 1) A: -a; DI: -e. 2) A: -tùm; C: -túm.
11. 1) AC: Winkelhaken; H: vertical wedge. 2) AH: -e-; CDI om. 3) CDH: -in-; A om. 4) CH: -ma; A om.

- Say to the governor and the sanga:
- 2 (thus) speaks Ur-Enlil:
- A ditch of clean water was carrying water,
- 4 Enlil-dingir-mu and Hanzamu
- "struck" it (and) took it away.
- 6 Lugalanne says:
- one ditch for me, one ditch for you, one ditch for the governor,
- 8 let the irrigation go on, he said, (but) they did not comply.
- Your canal has no workers, its ditch carries water,
- 10 it will carry water for me to the end.
- My work force is small, send me some workers.
- 12 It's urgent!

8.1.2.3. Commentary

The identity of the addressee(s) presents some problems. The titles ensí and sanga could be carried by the same person, who would therefore be the highest local official, civil and religious, in Nippur. An instance of this combination of titles is attested in the Nippur brick PBS 15 82, lugal-níg-ba ensí nibru^{ki} sanga den-líl. The titles appear juxtaposed again in Letter B 11 which indicates, by the use of the plural possessive, that, at least there, two different

8.1. Agricultural Letters

persons are involved, unless of course a single individual could address the king as "our king". Although the dative infix is not preserved in the present letter, the -a- in source H could be an indication that, at least in this source, the addressee is considered singular. However, a singular dative infix with several addressees is found in the Letter 3.313, see 8.1.4. There are several alternative solutions: (a) $\dot{u}$ -na-(a)-dug₄ is a sort of frozen form in which the singular dative infix can be used for several addressees, and here two different officials are involved, or (b) the two offices belong to a single person, the *ensi-sanga*, who used the plural when speaking about himself (note var. -mu for -me in B 11:15), or (c) one of the points in selecting these two letters for educational purposes was precisely the ambiguity that the two titles could refer to the same person (in B 10) or to two different ones (in B 11). There is nothing in the contents of these letters, besides the vaguely common subject matter of water, that requires that the addressee of B 10 be absolutely the same as the sender of B 11. For convenience, the translation assumes that there are two addressees here, and two senders in B 11, but the problem must be considered unsolved. As for the subject matter, the terse formulation of usually quite complex farmers' quarrels prevents one from forming a clear picture of the situation. The letter seems to deal with illegal use of the water of a certain ditch by Enlildingirmu and Hanzamu. A proposal of water division(?) by Lugalannne has not been accepted by the aforementioned individuals. The sender keeps using water from the same(?) ditch and needs more workers.

Line 3. It is not clear whether pa₅ a-luh-ha (cf. $\dot{u}$ pa₅-luh-ha Hh XXII 7:16, not in the Nippur Forerunner, and $\dot{u}$ pa₅-bi luh-ha a-ba-a mu-un-ba-al-e "who digs a canal whose ditches are clean?" *Ur-Namma hymn* D 3) is a toponym or merely a description of the physical condition of the ditch. If the reading $\dot{u}$ - of source C is the original one, the translation would be "a ditch which had been cleaned carried water." The regular term to describe the cleaning of a watercourse is, however, $\dot{s}u/\dot{s}u$ --luh--ak.

Line 5. While the second verb is clear (note *ekēmu*, the Akkadian counterpart of *kar*, said of a canal in *YNER* 4 36:6), the precise meaning of *sig* 'to strike' is unclear in the present context. It is assumed that it somehow describes a forceful action.

Line 8. The last verb is *še*, not *dùg* as in Ali's edition.

Line 9. The first half of the line is obscure. Ali read a-KU-zu-nu-ma and considered it a qualification of *erín*, Rowton 1967:273, read $\dot{u}$ zu-nu-ma and considered it an otherwise unattested canal name. Another solution would be to consider nu the negative verb, followed by the enclitic -ma (Akkadianism). This assumption has the advantage of providing a verb for the first half. The line seems to say that since there are no workmen in the governor's canal, the flow of water into the ditches goes unchecked.

Line 10. The adverb *záh-bi* is attested in *Dialogue* 2:23 *záh-bi-àm gá-e ù e-ne-bi du*₁₄ *ì-ak-en-dè-en* "I and he, we will quarrel to the bitter end," that is, until one of us disappears (*záh* = *halāqu*, etc.). Here the adverb indicates that the sender will use the water until it is all finished up.

Line 11. Compare Letter 3.313:12 (in 8.1.4).

Line 12. The Akkadian translation *apputtum* for the common a-ma-ru-kam ("it is a matter of the flood") is idiomatic. The origin of the Sumerian locution has to be sought in the shouted message that a town along the river sent to another one downstream to announce the

coming of the flood. Until the advent of modern communications, riverain communities, in places subject to floods, had traditional systems of warning each other.

8.1.3. LETTER FROM THE GOVERNOR AND SANGA TO THE KING (LETTER B 11).

8.1.3.1. Sources

For description and sigla, see 2.1. A = 10-15; B = 1-9, 13-15; C = 9-15; D = 1-15; G = 3-5, 11-13, 7-10. The Nippur sources have a relatively uniform text. The single Ur source G has an aberrant text. This tablet has been until now unrecognized (see Charpin 1986:451) although Kraus 1955:518, guessed its epistolary nature (the Ur III date he proposed, however, is incorrect). Source G omits the address (lines 1-2) and lines 6 and 14-15, changes the line sequence inserting lines 11-13 between 5 and 7, and has numerous variants that reveal the unfamiliarity of the scribe with the text he was writing. Characteristically, the Nippur field name Dabta in line 3 is replaced by me-àm 'where is it?'

8.1.3.2. Text

- 1 lugal-me ù-na-dug₄
- 2 ensí sanga-ke₄ na-ab-bé-a
- 3 a-ša da-ab-ta^{ki} 1 3240 iku-bi²
- 4 éš-gà^r ^den-líl ^dnin-líl¹ ù ^dnin-urta
- 5 šà-bi-ta 540 iku-àm kur₆ lú níg-dab₅-ba-ke₄-ne¹ 6180 iku-àm sa-dúr a-ša-ga-bi
- 7 ^m 1ik-bi-súm ù a²-bi-ga-ti-e inim mu-da-an³-gar-re-eš
- 8 tukum-bi lugal-me¹ an-na-kam
- 9 ra-gaba¹ hu-mu-ši-in²-gi₄-gi₄
- 10 kin-a¹-ak bulug a-ša-ga inim-dug₄-ga² hu³-mu-ni-ib-[x]⁴
- 11 su¹-bi-šè 2 iku [(...)]² 30 iku gaba a-ša-ga-bi
- 12 gišal-ta ba-dúb kin-šè¹ ba-ak²
- 13 erín dah-hu-um engar šà-gud lú giš¹ apin-na nu-me-a²
- 14 gud dil-dil-ta a-ša giš bí-ùr
- 15 al ì-ak-en-dè-en lugal-me¹ hé-en-zu

Textual notes

3. 1) BCD: da-ab-ta; G: me-àm. 2) C: -bi; G: -àm; B om.
4. 1) C(D): ^dnin-líl; BG om.
5. 1) B: -dab₅-ba-ke₄-ne; D: -dab₅-ba-ke₄; G -PAD-e-ne.
7. 1) B: ^m; EG om. 2) AG: a-; D om. 3) B(D): -da-an-; G: -e-de-.
8. 1) B: -me; G: -mu.
9. 1) D: -à[m; AG om. 2) B: -ši-in-; G: -un-.
10. 1) D: -a-; G om. 2) A: -ga; G: -ka; CD om. 3) CD: hu-; AG om. 4) G: -[x-x]l-ne (on edge); ACD br.
11. 1) D: su- (not collated); G: SU o.e. A² 2) D: 2 iku; G: sahar 2 iku ba me a, and om. rest of line; AC perhaps om. first half of line.
12. 1) A(C): kin-šè; C: ba-ak; D: -a]k; G: hé-x-a.

8.1. Agricultural Letters

13. 1) B: 9i^š; CG om. 2) Line according to ABC(D); G: kin še SAR a-ša-ga apin-bi nu-bi.

15. 1) B: -m]u; C: -me.

Say to our king:

- 2 (thus) speak the governor (and) the sanga:
3240 iku, in the field of Dabta,
4 (are) assigned to Enlil, Ninlil, and Ninurta.
Of this, 540 iku are shares of the participants.
7 Ikbisu and Abigati have contested (in court)
6 180 iku at the rear part of this area.
8 If it pleases our king,
he should send us a courier,
10 and [inform us] about the work, the field boundaries, and the decision.
2 iku for the ..., 30+ iku facing the field,
12 have been hoed (and) worked on.
There are no additional work teams, farmers, oxdrivers, or plowmen.
14 The field has been harrowed with single oxen.
May our king be informed that we will (have to) work with hoes.

8.1.3.3. Commentary

This letter has two parts. In the first (lines 3-10), the Nippur authorities inform the king about a legal case affecting a portion of a field. The king is expected to decide the case, possibly because the field is assigned to local temples. In the second part (lines 11-15) the king is informed of the lack of sufficient skilled hands, and of oxen, so that the field may have to be worked with hoes. While the first portion illustrates the king's role in disputes about field divisions, the second shows that in certain cases the field work had to be done with hoes, instead of using the more efficient, but not always available, oxen teams.

Lines 1-2. On the sender, see introductory remarks to Letter B 10. The -ke₄ after sanga appears to be incorrect. If it were only here, one could assume an unusual agentive -gé, but it is found again in Letter 3.313 after šabra, where this explanation does not hold. It must be considered some sort of scribal hypercorrection.

Line 3. The field Dabta appears in the Nippur Forerunner to Hh XX 11 and in the legal documents BE 6/2 43 and ARN 79.

Line 4. The term éš-gàr is limited to Nippur (NATN 40; 93; TMH NF 1/2 303:25) and appears once in Fara (JAOS 52 113 no. 973) in Ur III times, while it is frequent in OB texts. Besides the meaning "assigned task" said of workmen (see Charpin 1986:476) or of the thing which performs the work, such as oxen or plows (see commentary to FI 26f.), the word means also "assigned, for the benefit of someone."

Line 6. For sa-dúr, see discussion in 7.1.3. This particular area is here one-third of the kur₆ area which in turn is one-sixth of the éš-gàr area.

Line 7. The first name is found in the list PBS 11/1 p. 64 no. 279. I do not know any other instance of the second, Abi-qati, for which compare the similar Ili-qati in PBS 11/1 p. 55 no. 65.

Line 8. Lit. "if our king is of 'yes';" an-na "yes" is probably an Akkadianism. This is a formula found in other letters, e.g., *Letter B* 6:11; *B* 17:19; *SEM* 74:11; *UET* 6 251:7; compare an-na—dug₄/e "to say yes."

Line 11. The copy of D (not collated) has a clear SU, G seems to have SU over an erased A. One would perhaps expect dūr, cf. *JNES* 43 285f. The line remains textually uncertain since it is complete only in the unreliable source G. In any case, it gives the areas and locations where the activities mentioned in line 12 take place.

Line 12. The verb dúb said of hoeing is unusual. The following kin-šè—ak "put to work" makes it unlikely that some sort of punitive action (similar to gišal—ri/ra "to demolish with the hoe," said of buildings or cities, in the lamentations) is intended.

Line 14. Instead of having regular oxen teams assigned to harrowing, the sender is reduced to using a few animals from various sources.

8.1.4. LETTER FROM A ŠABRA TO THE GENERALS (LETTER 3.313)

8.1.4.1. Sources

A	N 3754 + N 4229	1-11.
B	Ni 13225 iii 7'ff. (unpubl.)	1-12.
C	3N-T923, 495 (<i>SLFN</i> pl. 26)	1-13.
D	UM 29-15-384:4'ff.	1-6.
E	CBS 14049 + N 846 (copy Ali, op.cit. 40)	1-9.
F	3N-T668 = UM 55-21-372	3-13.
G	Ni 13163 (unpubl.)	3-11.

This letter is found alone in the small tablets A and G; in B, E, and G it follows the dedicatory inscription of an axe to Nergal (*TMH* NF 4 45 and dupl.), in C it is followed by B 10 according to the catch-line, and in D it follows a legal text about a lost seal (B 12).

8.1.4.2. Text

1	sagina-e ¹ -ne
2	ù-na ¹ -dug ₄
3	šabra-ke ₄ na-ab-bé-a ¹
4	igi ¹ id ¹ buranun-na
5	tum-ma-al ^{ki} -šè ba-ni-ib ¹ -è
6	ù nag-ku ₅ ¹ mah ugnim ib-ak-e ²
7	a-šà giš-gi ¹ -dùn-là-šè ba-ni-ib ² -è
8	a-zi-ga 1 1/2 kùš im-ma-an ¹ -zi
9	tukum-bi ^d utu nu-um-ta-è
10	7200 erín ¹ ugu-ba nu-ub-DU ¹ 2
11	600 ¹ (bùr) [] 'x' [b]a-ab-tùm
12	á ma-tur nu-mu-un-da-úš-en
13	a-ma-ru-kam

Textual notes:

1. 1) ABCE: -e-; D -mu-.
2. 1) D: -a-; AE om.
3. 1) Line in ACF; BDE om.
4. 1) ABDG: igi; C: ugu.
5. 1) B: -ib-; CEF: -ib-.
6. 1) ACE nag-ku₅; B: nag-[-; D: nag-ku; F: ^{id}nag; G: [-ku₅. 2) ACEF: íb-ak-e; D: im-ma-ak.
7. 1) A: -a-; CEFG om. 2) ABEFG: -ib-; C: -íb-.
8. 1) CG: -an-; AEF om.
10. 1) C: erín; B: iku[?] 2) There may be some missing sign(s) before ugu-.
11. 1) B: 600; C: 3600.

Say to the generals:

(thus) speaks the *šabra*:

- 4 the level of the Euphrates
has overflowed in the direction of the Tummal,
- 6 but the troops are making a huge *nag-ku*.
It has (also) overflowed towards the Gišgidunla field.
- 8 The water has risen 1 ½ cubits (ca. 0.75 m).
If the sun does not come out,
- 10 7200 soldiers will not prevail against (the flowage).
The [waters] have carried away 3600 bur.
- 12 My work force is insufficient, I cannot dam up the water.
It's urgent!

8.1.4.3. Commentary

This letter describes a catastrophic flood in the Nippur area, aggravated, to judge from line 9, by continued spring rains. The addressees are the military authorities. The civil administration of Nippur does not have the man power needed to control the unusually high water levels and army manpower, provided by the generals, will be needed to help in the emergency.

Line 2. Note the singular dative infix.

Line 3. The -ke₄ after *šabra* is grammatically incorrect, see remarks in 3.3, lines 1-2.

Line 4. "Level," lit. "surface," cf. Akk. *pan mē*. Perhaps one could translate "the front of the high waters," i.e., the onrush.

Line 5. The Tummal is an ancient sanctuary in the outskirts of Nippur, on the banks of the Euphrates, frequently mentioned in the administrative texts. For its location and legendary history, see Yoshikawa 1989.

Line 6. For the nag-ku₅, a reservoir to divert excess waters, see discussion in 7.1.4.5. This is the passage confirming the reading ku₅.

The Farmer's Instructions

Line 7. This field was situated in the Nippur area and is mentioned in the Sargonic document *TMH* 5 79 ii 4, iii 6; for Ur III mentions, see *UNL* no. 388. In all these instances the name is written giš-gi-dul₉-la^{ki}.

Line 8. Compare the "proverb": a-zi-ga 1 ½ kùš im-ma-an-zi, 3 kùš a kar-ra gál-la, gír-na [ba]-ni-in-si "the flood waters have risen 1 ½ cubits, there are 3 cubits of water in the quays, his feet are covered(?)" *ISCT* 2 102 v 8ff. (*Collection* 15).

Line 9. The line refers to continued spring rains.

Line 10. For the verb, see commentary to FI 35.

Line 12. The verb is ambiguous, it can be read til, "I cannot finish (the task)," or úš, "I cannot dam (the waters) up."

8.2. Ur III Agricultural Texts in the Oriental Institute

During the preparation of the present edition of the "Farmer's Instructions," the writer studied the Ur III tablets dealing with agricultural matters in the collections of the Oriental Institute. Since many of them are quoted in the preceding pages, they are given here in transliteration. It has seemed preferable to include all identified texts dealing with this subject. A few texts, notably some dealing with river transportation, refer to agriculture only peripherally, if at all, but they have been nevertheless included. Grain distributions with no direct reference to agricultural operations have been generally omitted.*

1. AGRICULTURAL TOOLS

1.1. *Plows*

1.1.1. A 2581. Umma, AS 6/6.

28 kuš udu

giš^šapin-šè

ki a-kal-la ašgab-ta

kišib ur-mes

itu š[u-num]un

mu ša-aš-ru-um^{ki}

a-rá 2-kam ba-hul

seal: ur-mes

dub-sar

dumu ur-dašnan

References to hides for plows in Sigrist 1981:185; add to the texts published there: *JCS* 24 167 83; *JCS* 28 214 n. 22; *MVN* 13 5; 7; etc. Cf. also *ITT* 5 6879 (Girsu).

1.1.2. A 26328. Umma, AS 7/5.

210 kuš a ní-gu₇

gud apin-e šu-du₇-du₇

ki a-kal-la ašgab-ta

kišib a-rá

itu RI

mu hu-hu-nu-ri^{ki}

ba-hul

seal: a-rá

dub-[sar]

dumu lú-GA.

For šu-du₇ said of the plow, see, for instance, *BIN* 5 190:1; *TCL* 5 5672 v 19, 23; *MVN* 14 202; etc.

1.1.3. A 5923. Umma, AS 7.

2 kuš anše

giš^šapin-na HI-lá-dè

engar-e šu ba-ab-ti

kišib nam-šà-tam

íd-pa-è

mu bí-tu[m-ra]-bí-[um^{ki} ba-hul]

seal: íd-pa-è

dub-sar

dumu lú-dšará

sag-du₅

HI-lá is said mostly of doors, references in Sigrist 1981:184f. The meaning must be something like "to tie," "to reinforce" rather than "décorer," "rembourrer."

1.2. *Hoes*

1.2.1. A 2619. Umma, AS 5.

30 giš^šdúr pisan im-sar-ra gíd 1/2
kùš-ta

6 giš kilib al

12 giš^šepir sizkúr-šè gíd-bi 5 kùš-ta

ki ur-TAR-luh-ta

kišib a-gu

šà bal-a

* All Ur III tablets (ca. 2700) in the Oriental Institute collections have been transliterated by Markus Hilgert who is preparing their publication.

mu en unú-gal ^dinanna ba-hun
 seal: 'ur^l-[...]
 dub-[sar]
 'dumu^l [...]

This tablet is resumed in *MVN* 10 230 (= *RA* 73 34f.) ii 27-iii 1. ^gis^dúr pisan im-sar-ra is the wooden bottom of a tablet box (Akk. *kiškirru*); And perhaps also the top, since in some instances the *dúr* come in pairs (*é-ba-an*); see, e.g., *MVN* 10 230 ii 3, 27, iii 12, 14, etc.; *StOr* 9 17 (and its parallel *TENS* 477); *UCP* 9/2 2 68 (resumed in *MVN* 10 230 i 26ff.); and perhaps *BRM* 3 139. In line 2 the proper sequence is probably *kilib* ^gis^al, as in *MVN* 10 230, and in the following tablet. The word *kilib* must designate a bundle, as in the reed texts; *epir*(BI), Akk. *kannu* A, is a rack or stand for pots. The qualification *sizkúr-šè* is missing in *MVN* 10 230.

1.2.2. A 2545. Umma, AS 6.
 5 *kilib* ^gis^al zú si-ga
 10 *kilib* ^gis^dim
 ki ur-TAR-luh-ta
 kišib a-gu
 ša bal-a
 mu a-rá 2-kam
 ša-aš-ru-um ba-hul

seal: a-gu
 dub-sar
 dumu lugal-é-mah-e

This tablet is resumed in *MVN* 10 230 iii 16-19. Line 1: "five bundles of hoes provided with blades." The ^gis^dim is a peg or picket (Akk. *timmu*).

1.3. Copper Implements

1.3.1. A 2854. Umma, S 46/11.
 54 uruda^aha-bù-da
 'ki-lál-bi 26 1/3 ma-na 5 gín
 13 uruda^akin
 ki-lá-bi 2 1/3 ma-na 3 gín
 kin dúb-ba
 ki [d]a-da-ga-ta
 [en]si-ke^a 'il-lá
 itu pa^a-Ū-e
 mu ki-maš^{ki} ba-hul

seal: arad-zu seal of Ur-Lisina dedicated to Šulgi.

1.3.2. A 22190. Umma, Š 48/6
 30 uruda^aha-bù-da
 ki-lá-bi 17 ma-na
 kin til-la
 ki da-da-ga-ta
 ur-^dšará-ke^a in-lá
 itu šu-numun
 mu ūs-sa ki-mas^{ki}
 ba-hul mu-ūs-sa-bi

seal: ur-^dšará
 dub-sar
 dumu lugal-LALxLAGAB

1.3.3. A 26337. Umma, AS 1/5.
 16 uruda^aha-bù-da
 ki-lá-bi 9 5/6 ma-na 3 gín
 kin til-la
 ki lú-ib-gal-ta
 ur-^dšará-ke^a in-lá
 itu RI
 mu ^damar-^dsuen lugal

seal: ur-^d[šará]
 dub-[sar]
 dumu lugal-LALxLAGAB

1.4. Baskets

1.4.1. A 4699. Umma, AS 2.
 60 ^gidupsik
 ki da-da-ta
 gur^a-a im ūr-dè
 kišib lugal-[x]
 mu ^damar-^ds[uen]
 lugal ur-b[i-lum^{ki}]
 mu ba-hul

seal: lugal-hé-nun
 dub-sar
 dumu ur-nigìn-gar

Line 3: "to plaster the grain piles with mud." In the date formula, the scribe erroneously wrote the prefix *ba-* and then wrote the correct *mu-*, without erasing the first.

1.4.2. A 2755. Umma, AS 5/6.
 60 ^gidupsik
 KA-^dšará
 50 ^gidupsik
 ur-ab-^lba^l
 mu-túm
 ki ur-TAR-luh-ta

8.2. Agricultural Texts in the O.I.

kišib ur-dšul-pa-è
itu šu-numun
mu en unú-gal dⁿinanna
seal: ur-dšul-pa-è
dub-sar
dumu lugal-kù-ga-ni

2. CANAL WORK AND IRRIGATION

2.1. A 2975. Umma, Š 48/11.
300 guruš šà-gud u₄ 32-šè
a-šà-ge a-dug₄-ga
ugula ur-un-na
kišib da-a-gi
a-šà amar-GIŠ.GÍR
itu pa₄-e-Ú-e
mu ha-ar-
šⁱki ki-maš^{ki} ba-hul
seal: da-[a-gi]
dub-[sar]
[dumu ur-gi^šgigir]

2.2. A 3109. Umma, AS 1/8.
7 guruš šà-sahar-ra
kun-zi-da
íd-DU.DU-ka
gub-ba
ugula lugal-má-gur₈-re
kišib KA-dšará
itu é-itu-6
mu d^aamar-d^suen
lugal
seal: KA-dšará
dub-sar
dumu ur-nigìn [kuš⁷]

2.3. A 4270. Umma, AS 3.
7 guruš u₄ 3-šè
e a-ga-an-du-ul-
ka šu-ùr-ra
8 guruš u₄ 7-šè
a-šà-ge a-dug₄-ga
ù nag-ku₅ sahar si-ga
a-šà en-du₈-DU
ugula lú-dùg-ga
kišib ur-dun
mu si-ma-núm^{ki}
ba-hul
seal: ur-[dun]
dub-[sar]
dumu [da-da]

Line 2: for this toponym, see also MVN 14 387, 454.

2.4. A 3125. Umma, AS 3.
13 1/3 sar kin kur₆-ra
e sa-dúr a-šà amar-GIŠ.GÍR
10 sar sahar pa₄-a-da-ga
a-šà UD-gunū
kin kur₆-ra
ugula gū-TAR
kišib a-kal-la
mu gu-za d^{en}-
lil-lá ba-dím
seal: a-kal-la
dub-sar
dumu lugal-é-mah-e

2.5. A 2756. Umma, AS 4/12.
108 géme u₄ 1-šè
kun-zi-da dub-lá-d^{utu}-da gub-ba
ugula dšará-za-me
kišib ur-dšará
itu d^adumu-zi
mu en mah gal an-na ba-hun
seal: ur-dšará
dub-sar
dumu lugal-LALxLAGAB

2.6. A 3305. Umma, AS 6.
14 un-ÍL 2 tu-ra
u₄ 25-šè ka-ma-
rⁱki a še e-si-na dug₄-ga
ù kun-zi-da gi₄-a
gír ur-gi^šgigir
ugula šeš-kal-la
mu ša-aš-ru-um^{ki}
ba-hul
seal: ur-[]
dub-[sar]
dumu []

2.7. A 3017. Umma, AS 9.
18 guruš u₄ 1-šè
ka a-ga-am par₄(?)
šú-luh-ak
ugula lugal-dšará
kišib a-gu-gu
mu en ga-eš^{ki} ba-hun
seal: lugal-ezen
dub-sar
dumu da-da

2.8. A 5992. Umma, ŠS 1.

16 gurus₄ u₄ 5-šè¹
a-da gub-ba
a-ša lugal-ka
17 gurus₄ u₄ 3-šè
a-ša ukú-nu-ti bal-a-r[i]
sa-du₈ ak []
14 g[urus₄ u₄ x-šè]
ka id-da
giš DU-ka
kun-zi-da gi₄-a
ugula a-kal-la
kišib da-da-ga
mu dš_u-dsuen lugal

seal: da-da-ga
dub-sar
dumu ur-nigìn-gar kuš₇

2.9. A 2568. Umma, ŠS 4.

6 sar sahar
nag-ku₅ id^{UD}UD-gunû-ta
sahar zi-ga
92 gurus₄ u₄ 1-šè
a-ša gú-edin-na
46 gurus₄ u₄ 1-šè
a-ša GÁN anše ù
a-ša a-dalla-GÁN lú-d^ršarál
a-ša-ga a-dé-a
ugula ur-dⁿnin-su
kišib id-pa-è
mu bàd mar-tu ba-dù

seal: id-pa-è
dub-sar
dumu lú-d^ršarál
sag-Idu₅¹

2.10. A 2644. Umma, ŠS 6.

3 gurus₄ u₄ 1-šè
id-sal₄la^{ki} šu-luh-ak
11 gurus₄ u₄ 1-šè
nag-ku₅ id-sal₄la^{ki}-ta
sahar šu-ti-a
22 gurus₄ u₄ 1-šè
e sa-dúr-ra a-ša g^{iš}ma-nu gub-ba
gír gu-ú-gu-a
10 gurus₄ u₄ 1-šè
pa₄ a-da-ga ba-al
a-ša dⁿnin-ur₄-ra
gír a-a-kal-la
15 gurus₄ u₄ 1-šè

a-da gub a-ša gal-tur
a-ša lal-mah

gír tu-ga-aš
ugula lugal kù-zu
kišib gu-ú-gu-a
mu dš_u-dsuen
lugal-e na mah mu-dù

seal: gu-ú-gu-[a]
dub-[sar]
dumu ma-an-[sum]

2.11. A 2559. Umma, date broken.

16 2/3 sar sahar
á lú hun-gá [x sila]
á-bi u₄ 100 kam
še-bi 2 gur nag-ku₅ id-sal₄la^{ki}
sahar si-ga
ki ar[ad-t]a
kišib luga[l-é-ma]h-e
gír [x¹] []
[itu¹] []
mu []
[dⁱina[nna]]

seal: lugal-é-mah-e
dub-sar
dumu lugal-[]

2.12. A 5469. Girsu(?), date broken.

e da ki-su₇-ta
10 ninda gid nu-tuku
50 ninda gid 10 gín-ta
kin-bi 8 1/3 sar
5 30 ninda gid 15 gín-ta
kin-bi 7 1/2 sar
30 ninda gid 1/3 sar-[ta]
kin-bi 10 s[ar]
40 ninda gid 1/2 sar-[ta]
10 kin-bi 20 sar
24 ninda gid 1/3 sar-ta
kin-bi 8 sar
66 ninda gid 1/2 sar-ta
kin-bi 33 sar
15 20 ninda gid 2/3 sar-ta
kin-bi 13 1/3 sar
78 ninda gid 1/3 sar-ta
kin-bi 26 sar
15 ninda gid 1 sar-ta gú-šè¹
20 kin-bi 15 sar
10 ninda gid 1/3 sar-ta
kin-bi 3 1/3 sar
20 ninda gid 10 gín-ta

8.2. Agricultural Texts in the O.I.

25 kin-<bi> 5 'sar'
 13 ninda gíd 10 gín-ta
 kin-bi 2 s[ar] 10 gín
 10 ninda gíd nu-[tuku]
 šu-nigín 413+[3 ninda gíd]
 kin-bi 120+[32 1/2 sar]
 (blank space)
 30 ki[n]
 [] GÍR []
 [] 'x' []
 []

See 7.1.1.4.3 *f*, for a discussion. The tablet is tentatively assigned to Girsu, because of the preserved GÍR in line 31, which is either part of the name Girsu or of one of the field names with GÍR which are mostly from the Lagaš area (see UNL no. 373ff.).

3. PLOWING, HARROWING, WEEDING

3.1. A 3219. Umma, Š 41.

143 guruš u₄ 1-šè
 GIŠ.GÍR kud-rá
 ugula a-da-lál
 a-ša enxme-kár
 kišib lugal-ukkin-ni
 šabra gud
 mu-ús-sa é-
 puzur₄-da-gan
 ba-dù mu ús-sa-bi
seal: lugal-ukkin-ni
 dub-sar
 dumu lú 'x x x'

3.2. A 5975. Umma, Š 46/8.

7 guruš šà sahar-ra
 al-ak 3 sar-ta
 8 guruš gi kud-a
 10 sar-ta
 a-ša lú-d[x]
 ugula 'nir?l-lá
 kišib nam-ša-tam
 ur-dnun-gal
 iti é-itu-6
 mu ki-maš^{ki} hu-BI-
 ti^{ki} ba-hul
seal: ur-[...]
 [dub]-sar
 dumu [...]

In the date formula, the sign BI (or DUG) is perfectly clear. Read perhaps ^{hu}hubur_x-ti, taking BI/DUG as designating the pot huburu; cf. Aa VIII/4:144.

3.3. A 3137. Umma, AS 1/7.

50 guruš šà sahar-ra
 al 5 sar-ta
 a-ša UD-gunû
 ugula lugal-níg-lagar-e
 kišib a-kal-la
 itu min-AB
 mu d^aamar-d^ssuen
 lugal
seal: a-kal-la
 dub-sar
 dumu lugal-é-mah-e'

The determinative before the king's name is erased on the tablet.

3.4. A 2963. Umma, AS 1/8.

20 guruš al 6 sar-ta
 8 guruš gi kud-a 30 sar-ta
 á 5 síla-ta
 a-ša amar-GIŠ.GÍR
 gúrum u₄ 1-šè
 ugula lugal-gi^šgigir-re
 kišib a-da-ga
 itu é-itu-6 mu amar-
 d^ssuen [lu]gal
seal: a-da-ga
 []-'x-x'

Note the absence of determinative before the royal name.

3.5. A 22183. Umma, AS 3.

50 guruš šà-gud
 al-ak 5 sar-ta
 30 guruš Ú.GÍR kud
 15 sar-ta
 a-ša id lugal
 35 guruš al
 6 sar-ta
 20 guruš Ú.[GÍR kud]-
 rá 20 sar-ta
 da šà-gud-ta
 gur-ra
 a-ša UD-gunû
 ugula gú-TAR
 kišib a-kal-la

- mu gu-za ^{den}-
lil-lá ba-dím
seal: a-kal-[la]
dub-[sar]
[dumu ...]
- 3.6. A 4651. Umma, ŠS 3.
i [x ik]u túg-sig₁₈(ŠE.KIN)
[x ik]u giš a-rá 3
5 iku-ta
[á] erín-na-bi u₄ 278 1/3 4 gín
[x]+9 iku giš a-rá
3 5 iku-ta
[á] erín-na-bi u₄ 81
5 [x]+4 iku giš a-rá
2 6 iku-ta
[á] erín-na-bi u₄ 107
[GÁN] gud
[x i]ku giš a-rá
2 6 iku-ta
[á] erín-na-bi u₄ 13 1/2
[kur₆] engar
10 a-ša amar-GíR-gunû
[x]+3 iku túg-sig₁₈
[x ik]u giš a-rá 2 5 iku-ta
[á erín-na-bi u₄] '31?'
(break, close to bottom)
ii 6 iku túg-sig₁₈ 1 iku giš
a-rá 3 6 iku-ta
á erín-na-bi u₄ 27
15 24 iku giš a-rá 3 5 iku-ta
á erín-na-bi u₄ 43 12 gín
60 iku giš a-rá 2
6 iku-ta
á erín-na-bi u₄ 60
35 iku a-ša bal-
a giš a-rá 1 5 iku-ta
20 á erín-na-bi u₄ 21
GÁN gud
9 iku giš a-rá 1
5 iku-ta
á erín-na-bi u₄ 13 8 gín
kur₆ engar
25 a-ša UD-gunû
72 iku giš a-rá 1 5 iku-ta
á erín-na-bi u₄ 43 12 gín
GÁN gud
x iku giš a-rá [x] 5 [iku-ta]
30 [á erín-na-bi u₄ x]
[]
[]
- iii [kur₆ engar]
[a-ša] id [lu]gal
35 61 iku giš a-rá
2 5 iku-ta
á erín-na-bi u₄ 73 12 gín
a-ša gú-edín-na
46 iku giš a-rá 1
5 iku-ta
á erín-na-bi u₄ 27 1/2 6 gín
40 a-ša du₆ dšarâ
9 iku giš a-rá 1 5
iku-ta
á erín-na-bi 5 1/3 4 gín
6 iku giš nu-ûr-ra
a-ša enxme-kâr
45 24 iku túg-sig₁₈ 1/8 iku
giš a-rá 2 5 iku-ta
á erín-na-bi u₄ 124 2/3 8 gín
kin-ak-bi ba-UD nu-uru₄
a-ša uš-gíd-da
50 á giš-ûr-ra
iv (two or three lines are possible,
rest of column blank until subscript)
[a-ša]-ge kin-ak
[gi]š?-ûr GÁN
[kišib] ur-gi₆-par₄
[m]u si-ma-núm
[ki] ba-hul
seal: ur-gi₆-par₄
dub-sar
dumu a-a-kal-la
- Two column tablet, left edge damaged
- 3.7. A 2565. Umma, AS 7.
1 (bûr) iku giš-ûr-ra a-rá 3-kam 1/3
iku-ta
á erín-na-bi u₄ 27-kam
2/3 4/18 iku giš a-rá 3-kam 1/3 iku-ta
á erín-na-bi u₄ 16-kam
5 2/3 2/18 iku túg-sig₁₈(ŠE.KIN) 1/18
iku- ta
giš a-rá 3-kam 1/3 iku-ta
á erín-na-bi u₄ 63-kam
á giš-ûr-ra
95 sar al 5 sar-ta
á-bi u₄ 19-kam
10 24 sar al 5 sar-ta
á-bi u₄ 6-kam
á ša-gud-ka
636 sar al 4 sar-ta

8.2. Agricultural Texts in the O.I.

15 á-bi u₄ '1591-[kam]
 100 sar al [x sar-ta]
 á-bi u₄ 5 -[kam]
 190 sar al 5 sar-ta
 á-bi u₄ 38-kam
 á lú hun-gá 6 sila-ta
 20 a-ša tur-kin-ag-ga
 ugula [u]r-imes ŠIM'
 gír a-rá-mu
 ù ur-mes
 kišib lugal-é-mah-e
 mu hu-úh-nu-ri ba-hul
seal: lugal-é-mah-e
 dub-sar
 dumu lugal-kù-ga-ni

3.8. A 5160. Umma, AS 9.
 []
 [] s]ar
 8 1/2 gurus al 4 sar-ta
 a-ša-bi 34 sar
 gub-ba-àm
 lá-i 1 1/2 gurus
 lú hun-gá-me
 [g]ir ni-i-sag₉
 a-ša a-gàr-kal-la
 a-da-làl engar
 nu-bànda en-um-diškur
 u₄ 8-kam
 [mu e]n dnanna kar-
 [zi-da ba]-hun

Upper edge broken and "repaired" by the dealer.

3.9. A 5151. Umma, ŠS 1/5.
 24 gurus hun-gá
 á 6 sila-ta
 al 4 sar-ta
 u₄ 21-kam
 32 gurus la
 á 6 sila-ta
 al 3 sar-ta
 gúrum-ak u₄ 22-kam
 a-ša enxme-kár
 itu RI
 mu šu-dsuen lugal

Line 5: la, notation of unknown meaning, cf. AOS 32 O 7. No determinative before the royal name.

3.10. A 2981. Umma, ŠS 4.
 3300 sar giš-dehi
 kud-rá 20 sar-ta
 á-bi u₄ 165
 940 sar ^uHAR-an
 bù-ra 30 sar-ta
 (gap, ca. 10 lines)
 á-bi 'u₄ 30+[(x)]
 330 sar ^uNUMÚN 12 sar-ta
 á-bi u₄ 27 1/2
 á šà-gud-ka
 a-ša gid-da
 ugula lugal-kù-ga-ni
 kišib ur-^dutu
 mu ^dšu-dsuen
 lugal-e bàd mar-
 tu ba^{sic}-dù

3.11. A 4503. Umma, ŠS 4.
 1500 sar ^uHAR-
 an bù-ra 15 sar-ta
 'ál-bi u₄ 100-kam
 [] AN []
 []
 [] DU 'x' []
 '6' gurus u₄ 3-šè
 é-dur₅-ku₅-da-a-ta
 umma^{ki}-šè anše a DU-na
 ù anše id-dè
 bal-a a-rá '2-kam'
 ugula ur-lugal-[]
 [kišib] kù-ga-[ni]
 [mu] bàd [mar-tu]
 ba-dù

3.12. A 5835. Umma, ŠS 4.
 i 36 iku túg-sig₁₈(ŠE.KIN) 3/4 iku-ta
 giš-ùr-ra a-rá 3 5 iku-ta
 á erín-na-bi u₄ 208 2/3 '8? gín'
 45 iku giš-ùr-ra a-rá 3 4 1/2 iku-ta
 5 á erín-na-bi u₄ 90-kam
 60 3/4 iku giš-ùr-ra a-rá 2 5 iku-ta
 á erín-na-bi u₄ 73 2/3 8 gín-kam
 GÁN gud
 9 iku giš-ùr-ra a-rá 2 5 iku-ta
 10 á erín-na-bi u₄ 10 2/3 8 gín-kam
 kur₆ engar
 a-ša id-lugal
 36 iku túg-sig₁₈ 3/4 iku-ta
 ii giš-ùr-ra a-lrá 3' 5 iku-ta
 15 á erín-na-bi u₄ 180 2/3 8 gín-kam

64 iku giš-ùr-ra a-rá 3 4 1/2 iku-ta
 á erín-na-bi u₄ 128-kam
 153 iku giš-ùr-ra a-rá 2 5 iku-ta
 á erín-na-bi u₄ 183 1/2 6 gín-kam
 20 GÁN gud
 24 iku giš-ùr-ra a-rá 2 5 iku-ta
 á erín-na-bi u₄ 28 5/6 8 gín-kam
 kur₆ engar
 a-ša UD-gunū
 25 (one erased line)
 iii (two lines erased and traces of a
 third one, also erased)
 60 3/5 iku giš-ùr-ra a-rá 2 5 iku-ta
 30 6 1/2 iku giš-ùr-ra a-rá 1 5 iku-ta a-ša
 bal-a
 á erín-na-bi u₄ 77 12 gín-kam
 a-ša amar-GÍR
 9 iku túg-sig₁₈ túg(erasure)-gur₈ 3/4
 iku-ta
 giš-ùr-ra a-rá 3 4 1/2 iku-ta
 á erín-na-bi u₄ 84-kam
 35 7 1/2 iku túg-sig₁₈
 3/4 iku-ta giš-ùr-ra
 a-rá 2 4 1/2 iku-<ta>
 iv á erín-na-bi u₄ 54-kam
 a-ša sag-dù
 6 3/4 iku giš-ùr-ra a-rá 1 5 iku-ta
 á-bi u₄ 4-kam
 40 a-ša igi-é-mah-šè
 49 1/2 iku giš-ùr-ra a-rá 2 5 iku-ta
 á-bi u₄ 59 1/3-kam
 a-ša dšará-gú-gal
 12 iku giš-ùr a-rá 2 5 iku-ta
 45 á erín-na-bi u₄ 14 1/3 4 gín
 a-ša na-kab-tum
 3 3/4 iku giš-ùr a-rá 2 5 iku-ta
 á erín-na-bi u₄ 4 1/2-kam
 a-<ša> du₆-^fkùl-ge
 50 á giš-ùr-ra
 ugula gú-TAR
 kišib é-gal-e-si
 mu dšu-dsuen lugal-e bàd mar-
 tu mu-dù
 seal: é-gal-e-[si]
 dub-sar
 dumu lú-dšará
 sag-du₅-ka

3.13. A 2731. Umma, ŠS 5.
 615 sar ^uLAK 175-na
 sig₇-a 15 sar-ta

á-bi u₄ 41
 250 sar ^uLAK 175-na 10 sar-ta
 á-bi u₄ 25
 963 sar al 6 sar-ta
 á-bi u₄ 160^{sic} 1/2
 a-ša-ge kin-ak
 a-ša ^dnin-ur₄-ra
 nu-bànda gud lugal-kù-zu
 kišib gu-ú-gu-a
 gír ba-sag₉
 mu ús-sa dšu-dsuen
 lugal-e bàd mar-tu mu-dù
 seal: gu-ú-gu-a
 dub-sar
 dumu ma-an-sum
 3.14. A 2536. Umma, ŠS 4, 6, or 9.
 [x]+35 sar al [x] [sar-ta]
 á-bi u₄ 351-kam
 [300]+9 sar al 3 sar-ta
 á-bi u₄ 103
 5 417 sar al 6 sar-ta
 á-bi u₄ 69 1/2
 600 sar giš^{deh} kud-a 20 sar-ta
 á-bi u₄ 30
 2205 sar giš^{deh} kud-a 15 sar-ta
 10 á-bi u₄ 147
 160 sar ^uLÁLx^{DU} sig₇-a 10 sar-ta
 á-bi u₄ 17^{sic}
 1425 sar ^uGÍR kud-a 15 sar-ta
 á-bi u₄ 95
 15 1458 sar gi sig₇-a 12 sar-ta
 á-bi u₄ 121½
 600 sar gi sig₇-a 20 sar-ta
 á-bi u₄ 30
 105 guruš u₄ 1-šè
 20 ab-sín-ta la-ag de₅-de₅-ga
 á lú hun-gá 8 sila-ta
 a-ša-ge kin-ak
 a-ša a-ba-gal ù a-ša
 ukú-nu-ti-gu-[l]a
 ugula lú-dùg-ga
 25 kišib a-a-kal-la dumu
 ma-an-ba
 [mu] dšu-dsuen lugal-e
 [] mu-dù
 seal: A-a-kal-la
 dumu ma-an-ba
 sagi dšará

3.15. A 4990. Umma, date broken.

br.

['giš-ùr-ra] [a-rá]
2 5 iku-ta
1 (bùr) 1/3 iku giš-ùr-ra
a-rá 2 5 iku-ta
a-ša sag-dù
1 (bùr) 1/3 iku túg-sig₁₈(ŠE.KIN) 1/144
iku-ta
giš-ùr-ra a-rá 2
5 iku-ta
1 (bùr) 3/18 1/36 iku giš-ùr-ra
a-rá 3 5 iku-ta
a-ša šu-nu-kúš
a-ša-ge kin-ak
rest br.

3.16. A 4408. Umma, date broken.

23 1/2 guruš al [x] sar-ta
75 1/2 guruš al 4 sar-ta
47 guruš al 5 sar-ta
40 guruš gi-SIG₇-a 20 sar-ta
76 guruš gi-kud-a 15 sar-ta
47 guruš Ú.GÍR 15 sar-ta
61 1/2 guruš giš-dehi 20 sar-ta
38 1/2 guruš HAR-an bù-ra 15 sar-ta
26 guruš giš-gul-ak 10 sar-ta
á lú hun-gá 6 síla-ta
a-ša šu-nu-kúš
ensí
ugula gú-TAR
kišib lugal-kù-zu
(date broken, two lines)
seal: lugal-kù-zu
dub-sar
dumu lugal-é-mah-e

3.17. A 5920. Umma, date broken.

[x] sa[r] al 4 'sar-l-ta
(five lines broken)
[] 25 []
[á-bi] u₄ 189 []
[x] sar Ú.GÍR 12 s[ar-ta]
10 [á-bi] i u₄ 75-kam
[x]+2 1/2 sar Ú.GÍR 15 s[ar-ta]
[á-bi] i u₄ 29 1/2-[kam]
[x]+12 sar gi 12 [sar-ta]
[á-bi] i u₄ 10+[(x)-kam]
15 [x]+7 1/2 sar gi [x] sar-ta
[á-bi] u₄ 183-k[am]
[x] sar 'gi 20 s[ar-ta]

[á-bi] 'u₄ 91-[kam]
(two broken lines)
[x]+8 sar 'LAK 157-n[a x sar-ta]
[á-bi] u₄ 64-[kam]
'x₁+35 sar LAK 157-n[a x sar-ta]
[á-bi] i u₄ 70 1/3-[kam]
25 [x]+40 sar ú-giš-hašhur 'x₁ [sar-ta]
[á-bi] u₄ 56-kam
[x] sar ú-kul 10 sar-[ta]
[á-bi] u₄ 5-kam
[x]+2 guruš u₄ 1-šè gi []
30 [x] guruš u₄ 1-šè KA 'x₁ []
[x] guruš u₄ 1-šè gi SIG₇ []
ná
[á] lú-hun-gá 6 síla-t[a]
[] ú-igi-sa[g₉]
[] sar ú-kul 10 'sar-l-[ta]
[] u₄ 20-kam
35 [x] sar gi 10 sar-ta
[á-bi] i u₄ 34-kam
[] a]-ša 'UD₁-[gunū]
[] sag₉ []
(two or three broken lines to end)

4. SOWING

4.1. A 162. Umma, date broken.

br.

6 iku 10-ta a-ša giš-ma-nu
18 iku 9-ta a-ša lal-mah
21 (bùr) 2/3 4/18 1/36 iku
gír lugal-nisag-e
80 iku 10-ta
5' 33 iku 9-ta
a-ša lal-mah
[x]+43 1/2 iku 9-ta
[a-ša] KA eštub^{ku}6-sag
[x] iku 11-ta
[x] iku 10-ta
10' a-ša du₆-Ú.GÍR
19 iku 10 1/2-ta a-ša a-geštin-sud
13 (bùr) 2/3 5/18 1/36 iku
gír ur-giš-gigir
105 iku 9-ta
a-ša tur
15' '18₁ iku 12-ta
[x]+34 iku 10-ta
rest br.

Lower half of a tablet written with large signs.
The *n*-ta notation refers, of course, to the
number of furrows per ninda.

4.2. A 4194. Umma, AS 9.
 3 (bùr) iku uru₄-a 2 iku
 kur₆ uru₄-a
 ugula ur-^den-líl-lá
 kišib ur-dun
 mu en ga-eš^{ki} ba-hun
seal: ur-dun
 dub-sar
 dumu []

4.3. A 1153. Girsu, date broken.

i' (broken)
 [x.x].3 5 [sila] gur
 []-ga
 [x.x].1 (o.e.) gur
 []-ùb^{ki}
 5' [] ur-dun
 [a]b-ba-mu
 [x]+1.0.2 gur
 [^dn]in-sumún-ta
 []f^xl níg-^dba-ú
 10' [dum]u[?] ur-tur-tur
 [k]išib lú-^dna-rú-a
 []f^xl làl-ta
 [] kišib ur-dun
 [] ma-nu-ta
 15' [] 4 kišib ur-AB-kù-ga
 [] ur-^dnanše-ta
 (end of column)
 ii' (broken)
 '30' []
 2.2 á hun-gá
 a-šà na-ba-sag₉
 12 1/3 (bùr) iku 1.2.3-ta
 5' 5 á hun-gá
 a-šà uru-ul
 6 1/3 1/18 (bùr) iku 1.2.3-ta
 1.4 á hun-gá
 a-šà šáh-ùr-re-gar-ra
 10' 10 1/3 3/18 (bùr) iku 1.2.3-ta
 1.4 á hun-gá
 a-šà g^{iš}balag
 a-šà g^{iš}DUG
 6 (bùr) iku 1.4-ta
 15' a-šà á-ti
 6 1/3 3/18 (bùr) iku 1.4-ta
 (end of column)
 iii' (broken)
 1 3/18 (bùr) iku 1.2.3-ta
 a-šà gír-nun

4 amar [0.1].3-ta
 še-bi 1.1 gur
 5' 1 gur mur hu-KU-bu
 šu-nigín 68 1/6 3/18 (bùr) iku 1.2.3-ta
 šu nigín 48 3/18 (bùr) iku 1.4-ta
 šu-nigín 33 1/6 (bùr) iku 1.1-ta
 še-bi 229.2.1 5 sila gur
 10' iku uru₄-a
 šu-nigín 47 (eras.) gur
 á hun-gá
 šu-nigín 4 amar 0.1.3-ta
 še-bi 1.1 gur
 (end of column)
 iv' (only the first sign of several
 lines is preserved)
 rev.
 i' (only the first sign of six
 lines is preserved)
 ii' a-šà làl-HA-gu-la
 6 1/3 3/18 (bùr) iku 1.2.3-ta
 7 á hun-gá gur
 a-šà na-ba-sag₉
 5 12 (bùr) iku 1.2.3-ta
 9 á hun-gá gur
 a-šà uru-ul
 10 1/3 (bùr) iku 1.2.3-ta
 16 á hun-gá g[ur]
 10 a-šà g^{iš}b[alag]
 6 1/3 3/8 (bùr) iku [x-ta]
 1.2 á [hun-gá gur]
 a-šà sáh-[ùr-re-gar-ra]
 3 1/3 (bùr) ik[u x-ta]
 15 10+[x] '2/3' [(bùr) iku x-ta]
 (broken)
 iii' 1/3 3/18 (bùr) iku 1.4-ta
 a-šà a-sag-kak-DU-a-ta DU-a
 7 amar 0.1.3-ta
 še-bi 2.0.3 gur
 1 gur šà-gal gud hu-KU-bu
 5 šu-nigín 13 1/3 3/18 (bùr) iku 1.2.3-ta
 šu-nigín 43 2/3 (bùr) iku 1.4-ta
 šu-nigín 32 1/3 (bùr) iku 1.1-ta
 še-bi 227.3.1 8 sila gur
 iku uru₄-a
 10 šu-nigín 96 gur
 á lú hun-gá
 'šū-nigín' 7 amar 0.1.3-ta
 [še-bi] '2.0.3' gur
 (broken)
 iv' [š]e-bi 11 gur
 [x]+5.4 gur
 gud hu-KU-bu

5 [z]i-ga
[x]+24.1.1 gur
[lá]-i-àm
(rest of column uninscribed
as far as preserved)

Lower edge fragment of a very large
multicolumn tablet.

5. HARVEST AND THRESHING FLOOR

5.1. A 3378. Umma, Š 44.

140 guruš u₄ 1-šè
še giš-ra-a še dé-a
ki-su₇ a-kun-NE gub-[ba]
a-šà k[a-ma-]
ri^{ki}
kišib nam-<šà>-tam NE-
dug₄-ga
mu si-mu-ru-um
ki lu-lu-BALAG^{ki}
a-rá 9-kam
ba-hul

seal: NE-LAGAB-ga
dub-sar
[dumu ...]

Note the variant writing on the seal.

5.2. A 2845. Umma, Š 46.

208 guruš u₄ 1-šè
še-gur₁₀-a
gúrum-ak
ugula ba-sag₉
nam-šà-tam
kišib lugal-é-mah-e
mu ki-maš^{ki} ba-hul

seal: lugal-é-mah-e
dub-sar
dumu lugal-kù-ga-ni

5.3. A 2871. Umma, AS 3/1.

17 guruš gúrum diri
u₄ 1-šè še-gur₁₀-a a-šà lal-mah
ugula ukkin-né itu še-sag₁₁(KIN)-ku₅
mu ús-sa ur-bi-i-lum^{ki} ba-hul
kišib lugal-é-mah-e

seal: as in 5.2.

5.4. A 2843. Umma, AS 2/1.

8 1/2 guruš šà-sahar-ra
4 (erasure) un-íl

6 iku še-gur₁₀-a
ugula ukkin-né
[itu] še-sag₁₁-ku₅
mu ur-bi-i-lum ba-hul
seal: as in 5.2.

5.5. A 2663. Umma, AS 3.

4.1.3 še gur
á lú-hun-gá
sahar-ra
ki-su₇ a-šà i-sum-ta
ki arad-ta
kišib níg-ú-rum
mu gu-za ^{den}-
líl-lá ba-dím

seal: níg-ú-[rum]
dub-sar
dumu ^{den}nanna-[]

5.6. A 3325. Umma, AS 3.

183 guruš u₄ 1-[šè]
še še-sag₁₁-ku₅-a
535 guruš u₄ 1-šè
zàr-tab-ba
389 guruš u₄ 1-šè
ki-su₇ gub-ba
207 1/2 guruš u₄ 1-šè
še giš-ra-a
ki-su₇ ^dšarà-hé-gál
ù ^dšul-pa-è
ugula lugal-^dKA.DI
kišib KA-^dšarà
mu kù gu-za
^{den}-líl-lá ba-dím

seal: KA-^dšarà
dub-sar
dumu ur-nigìn-gar

5.7. A 4199. Umma, AS 5.

55 gême []
u₄ [x-šè]
a-šà é-lugal-ka
zàr-tab-ba šu-ùr-ra
ugula a-rá
kišib lugal-á-zi-da
itu še-sag-ku₅
mu ús-sa en
mah-gal-an-[na]
en ^dnan[na ba-hun]

seal: lugal-á-zi-da
dub-sar
dumu ʾxl-[]

5.8. A 2711. Umma, AS 7/3.
64 guruš

u₄ 1-šè
ki-su₇ a-ša^d nin-ur₄-ra-
ka gub-ba
ugula lugal-nisag-e
kišib nam-ša-tam uš-mu
itu še-kar-ra-gál-la
mu hu-hu-nu-ri
ki ba-hul

seal: uš-mu
dub-sar
dumu lugal-sag₉-ga

The seal is the same reproduced in YOS 4 314;
what looks there like a small human figure,
under the cartouche, is in fact a bird with
extended wings.

5.9. A 2669. Umma, AS 7/4.
87 guruš u₄ 1-šè
ki-su₇ a-ša lal-tur
ù ki-su₇ UD-ga-UD-geštin gub-ba
gìr a-rá
26 guruš u₄ 1-šè
ki-su₇ a-geštin gub-ba
gìr lugal-kù-zu nu-bànda-gud
ugula lugal-nisag-e
kišib lugal-é-mah-e
itu nisag
[mu hu-ù]h-nu-ri^{ki} ba-hul

seal: lugal-é-mah-e
dub-sar
dumu lugal-kù-[ga-ni]

5.10. A2703. Umma, AS 7.
206 guruš u₄ 1-šè
ki-su₇ a-kun-NE gub-ba
a-ša ka-ma-rí
ugula ba-sag₉
kišib ur-àm-ma
mu hu-hu-nu-ri
ba-hul

seal: [ur]-àm-ma
dub-[sar]
[dumu] na-[sá]

5.11. A 2675. Umma, AS 7.
1131 géme u₄ 1-šè
zàr-tab-ba šu-ùr-ra
a-ša^d šarà a-ša ur-gu
ù a-ša lal-tur
ugula ur-^dnin-tu
kišib nam-ša-tam
lugal-nisag-e
mu he-hu-nu-ri^{ki} ba-hul-a

seal: lugal-nisag-e
dub-sar
dumu lú-bànda^{da}

5.12. A 5948. Umma, AS 8.
172 géme u₄ 1-šè
zàr-tab-ba šu-ùr-ra
[a-ša] ^dnin-ur₄-ra
[ugula u]r-^dnin-tu
[kišib]-ʾxl-mu
mu en eridu^{ki} ba-hun
seal: illegible

5.13. A 2557. Umma, ŠS 6.
133 guruš u₄ 1-šè
ki-su₇ igi-é-mah-šè gub-ba
ugula lugal kù-zu
kišib ^dšarà-ba-zi-ge
mu ^dšu-^dsuen lugal-e na mah mu-dù
seal: ur-^dli₉-si₄
ensí umma^{ki}
^dšarà-ba-zi-ge
dub-sar arad-zu

5.14. A 2720. Umma, SS 6/8.
76 guruš u₄ 1-šè
ki-su₇-ra AN.ZA.ŠID a-ša
lal-mah gub-ba
46 1/2 guruš u₄ 1-šè
ki-su₇-ra á-te-na gub-ba
5 109 guruš u₄ 1-šè
ki-su₇-ra du₆-an-ùr-ra gub-ba
42 guruš u₄ 1-šè
ki-su₇ ì-sum gub-ba
še giš-ra-ra še dé-a
10 ù ki-su₇ gub-ba
nu-bànda-gud íd-pa-è
kišib lú-kal-la
itu é-itu-6
mu ^dšu-^dsuen lugal-
e na-rú-a mah mu-dím

seal: lú-kal-la
dub-sar
dumu ur-e₁₁-[x]-kuš₇

5.15. A 1178. Girsu, date broken.

i *br.*
... id ù-sur]
NE.RU¹-zé-zé gi-
na-šè
90 gur su₇-du₈ ab-ba-
ab-ba-ne

šu-nigin 1432.2.3. gur
á-giš-gar-ra itu gán-maš
mu-túm

ii *br.*
90 gur¹ su₇-du₈ ab-ba-
ab-ba
158.0.1 bar-ra-
kar-ra
u₄ 20-šè
su₇-du₈-bi 1902 gur

iii šu-nigin 1 gur₇ 1015.2.3 gur
á-giš-gar-ra
mu-túm
lá-i 485 gur
ugula ur-šu-ga-lam-ma
1 gur₇ 1500 gur
ša-bi-ta
89 erín
1 ša-gud
32 engar
br.

iv u₄ 20-šè
su₇-du₈-bi
797 gur

šu-nigin 1 gur₇ 801 gur
á-giš-gar-ra
[m]u-túm
[x]+19 gur
br.

Bottom part, about one third, of a two-column tablet.

6. FESTIVALS IN THE FIELDS

6.1. A 26318. Umma, Š 35/1.

0.0.3 eša lugal
0.0.3 zú-lum
sizkúr a-ša^d šará-ka-šè
ki kù-ga-ni-ta
lugal-é-mah-e
šu ba-ti
itu še-sag₁₁-ku₅ mu
ús-sa an-ša-an^{kí}
ba-hul

seal: lugal-é-mah-e
dub-sar
[dumu]

6.2. A 26321. Umma, AS 1.

1.2 še 1.2 zíz
níg sizkúr-ra a-ša-ga
é-gal id-lugal-ta
kišib lugal-kù-zu sukkal
mu^d amar-^d suen
lugal

seal: lugal-kù-zu
dub-sar
dumu [x x^l-[]

6.3. A 2593. Umma, AS 5/3.

1 udu
sizkúr ki-su₇
a-ša ukú-nu-ti-bal-a-ri
ki kas₄-ta
kišib a-kal-la
itu še-kar-ra-gál-la
mu en unú-gal^d inanna ba-hun

seal: a-kal-[la]
dub-[sar]
dumu ur-nigin-[gar kuš₇]

6.4. A 2763. Umma, AS 5/12.

2 udu 1 máš
sizkúr a-ša kéš-rá
gír maš-maš-ne
ki kas₄-ta
kišib a-kal-la nu-bànda
a-ša ka-ma-ri^{kí}
itu^d dumu-zi
mu en unú-gal^d inanna ba-hun

seal: as in 6.3.

7. TRANSPORTATION

7.1. A 3346. Umma, Š 45/1.

4 guruš u₄ 5-šè
 má-lal-a ¹giš¹[ma-n]u(?)
^dnin-ki-¹x-(x)-x¹-ta
 kéš-ša ù umma^{ki}
 gíd-da
 gír tir-¹da¹ uku-¹uš¹
 kišib ensí-ka
 ugula ba-sag₉
 itu še-sag₁₁-ku₅ mu-ús-sa
 si-mu-ru-um^{ki} lu-lu-bu^{ki}
 a-rá 9-kam ba-hul

seal: ^dšul-gi ur-^dli₉-si₄
 nita kalag-ga ensí
 lugal ur^{ki}-ma umma^{ki}
 lugal anub-[...] arad-zu

7.2. A 2902. Umma, Š 46/7.

24 guruš u₄ 2-šè
 má-lal-a kéš-rá
 u₄ 14-šè
 gá-nun en-du₈-DU-ta
 é-te-na-šè
 má-lal-a gíd-da
 u₄ 2-šè
 má-lal-a ba-al-la
 kišib gír-NE-dug₄-ga
 ugula ba-sag₉
 itu mìn-AB
 mu ki-maš^{ki} mu^{sic}-hul

7.3. A 3005. Umma, Š 48.

50 géme u₄ 1-šè
 KI.AN^{ki}-ta
 umma^{ki}-šè
 gib íl-gá
 mu-ša-šè
 ugula lú-sag₉-ì-zu
 kišib arad-<mu>
 mu ha-ar-ši ki-maš^{ki} ba-hul

seal: arad-mu
 dub-sar
 dumu ur-nigìn-gar kuš₇

Line 7: no -mu after arad, against seal.

7.4. A 2894. Umma, AS 1.

6 guruš u₄ 6-šè

du₆-kù-ge-ta
 kun-zi-da
 maš-gân^{ki}-šè
 má-lal-a
 gíd-da
 ugula arad-mu
 kišib unkin-né
 mu ús-sa ha-
 ar-š^{ki} ki-maš^{ki}
 ba-hul
 seal: lugal unkin-¹né¹
 dub-sar
¹dumu¹ DU.DU-A.[AN]

7.5. A 2893. Umma, AS 1.

8 guruš u₄ 2-šè
 umma^{ki}-ta
 íd-lugal-šè má gíd-da
 u₄ 2-šè še má-a si-ga
 u₄ 5-šè má gíd-da
 u₄ 4-šè má ba-al-la
 še bal-a gur₇-a im ùr-ra
 ugula ur-mes
 gír uš-mu
 íd-lugal-ta
 gír₁₃-giš^{ki}-šè
 mu ^damar-^dsuen lugal

seal: uš-¹mu¹
 dub-¹sar¹
 dumu lugal-¹sag₉-ga¹

7.6. A 5328. Umma, AS 1.

180 guruš u₄ 1-šè
 á še 11.¹4¹ gur-¹kam¹
 má gíd-da še má-a si-ga
 ù še ba-al-la
 a-ša a-ba-al-la-ta
 5 a-ša ha-zi-šè
 kaskal-bi 4 da-na
 120 guruš u₄ 1-šè
 á še 12 gur-kam
 má gíd-da še má-a si-ga
 ù še ba-al-la
 10 bára-si-ga^{ki}-ta
 a-ša a-ba-al-la-šè
 kaskal-bi 2 da-na
 šu-nigín 300 guruš u₄ 1-šè
 še zi-ga

15 ki bù-lu₅-lu₅-ta
 ba-zi
 mu ^damar-^dsuen lugal

7.7. A 26331. Umma, AS 2/1.

15 guruš u₄ 1-šè
 má-a anše g[id]-da
 ugula lugal-má-gur₈-
 re dumu lú-zu-nam
 kišib nig-lagar-e
 itu še-sag-ku₅
 mu ^damar-^dEN.

ZU lugal-e ur-

bí-lum mu-^hul^l

seal: nig-lagar-e
 dub-sar
 [dumu]

7.8. A 3126. Umma, AS 2.

10 guruš u₄ 2-šè
 má kéš-rá
 u₄ 14-šè má-gíd-da
 má diri-ga
 u₄ 2-šè
 má ba-al-la
 níbru^{ki} a-rá 1-kam
 5 guruš u₄ 2-šè
 še má-a si-ga
 u₄ 8-šè má diri-ga gíd-da
 u₄ 5-šè má ba-al-la
 urⁱ^{ki}-šè
 ugula ur-^den-líl-lá
 kišib lugal-itu-da
 mu ^damar-^dsuen lugal
 ur-bí-i-lum^{ki} mu-hul

seal: cf. A 2965.

7.9. A 2991. Umma, AS 4.

16 guruš u₄ 5-šè
 gá-nun giš-ab-ba-ta
 dub-lá-^dutu-šè má-ta
 ú ^lim^l lá
 15 guruš u₄ 4-šè
 MÜŠ.NE-dù-ta
 íd-sal-la-šè
 gi íl-gá
 17 guruš u₄ 5-šè
 íd-sal-la gub-ba
 kišib A.IGLAN
 ugula lú-dingir-ra
 mu en-mah-gal-an-na ba-hun

seal: illegible

7.10. A 5944. Umma, AS 7.

8 guruš u₄ 2-šè
 GAR-ša-na-ta
 gur₇ ki-sur-ra-šè
 má-gíd-da
 ugula ^dšàra-[]
 kišib ur-lugal
 mu hu-úh-nu-ri
 ki ba-hul

seal: ur-[lugal]
 dub-sar
 dumu [da-a-g]i

7.11. A 4578. Umma, ŠS 2/12.

40 guruš u₄ 4-šè
 kar umma^{ki}-ta
 a-aš-gi₄-pà-da-aš
 má ensi-ka
 gíd-da
 [x]+5 guruš u₄ 2-šè
 [ku]n-zi-da
 íd-^damar-^dsuen-ke₄-
 gá-ra-šè ú íl-gá
 20 guruš u₄ 1-šè
 nag-ku₅ dub-lá-^dutu
 sahar si-ga
 ugula []-gu
 kišib a-[rá]-mu
 itu ^ddumu-zi
 mu má [^de]n-ki ba-ab-du₈

seal: ur-^dsu[en]
 dub-sar
 dumu ur-[gišgigir]
 šà-[tam]

Line 1: erasure after 40; 4, before -šè, is written 2+2. For the seal, see Gallery AfO 27 (1980) 34 a 4; the seal has four lines as in JCS 24 (1971-72) 160 no. 52, and CHÉU 83 is incorrect.

7.12. A 4965. Umma, ŠS 2.

15 guruš u₄ 3-šè
 má-lal-a kéš-ré
 dur sur-ra ú gišdal kéš-rá
 u₄ 6-šè má^l-lal-a gíd-da
 20+[x]
 2 br. lines
 ugula a-kal-la
 kišib lugal-itu-da
 mu má ^den-ki ba-ab-du₈

seal: lugal-itu-[da]
nu-[bànda gud]
dumu [gìr-ni]

8. VARIA

8.1. Field Survey

8.1.1. A 1157. Lagaš, date broken.

i' (broken)
1 2/3 3/18 (bùr) iku []
1 (bùr) iku e
3/18 (bùr) iku 'él-duru₅
a-ša hi-li-gar-ra
5' 11 1/3 4/18 1/144 (bùr) iku illu
[] (bùr) iku e
a-ša ab-ba-nu-mu-na-gál
[x] (bùr) iku sig₅ ú
'11 2/18 1/36 (bùr) iku murub₄ ú
10' 1 1/3 1/36 (bùr) iku mur₇
[] (bùr) ik]u giškir₆
[] 'x] i-du₈
[] bal-a
(broken)
ii' 10 1/3 3/18 1/36 (bùr) iku []
36 1/18 1/36 (bùr) iku A.[KAL(?)]
3 3/18 (bùr) iku mur₇
10 1/18 1/36 (bùr) iku e
5' 4 1/3 1/36 (bùr) ikuí d
5/18 1/x (bùr) iku du₆
a-ša bar-ra-[AN]
ù a-ša éš-dam
91 1/3 4/18 1/36 (bùr) iku (blank)
15 2/3 4/18 1/36 (bùr) iku murub₄ ú
10' 12+[x] 2/3 1/72 (bùr) iku mur₇
'171 1/3 2/18 (bùr) iku []
(broken)
iii' (totally broken)
rev.
i' (broken)
ur-gi₅l[gigir]
[ù]
14 '2/31 ['sig₅l
1/3 1/36 (bùr) iku murub₄ ú
1/18 (bùr) iku mur₇
5' 5/18 (bùr) iku e
2 (bùr) iku id
a-ša GÍR-gunú
lú-dab-ú
ù ur-nigìn-[]
[]+2 1/18 (bùr) iku sig₅

10' [(bùr) i]ku murub₄ 'ú
[(bùr) ik]u mur₇
(broken)
ii' (broken)
'x-x] ta sukkal
'aga] ús-gal sukkal
ù NIM-me
4 1/3 (bùr) iku sig₅
zi-ga kù-dim
5' 1 lú-ga-mu
1 nam-ha-ni
zi-ga lugal-kam
a-ša dūg-gal-gu-la
90 1/36 (bùr) iku []
10' 81 [(bùr) iku]
4 [(bùr) iku]
2 2/3 [(bùr) iku]
3+[(bùr) iku]
(broken)
iii' Only ends of 11 lines: sig₅, murub₄ ú,
id, pú, e, sig₅.

This tablet belongs to a group of texts with field surveys which measure an entire area, including uncultivable ground classified in various categories, instead of only the cultivated extent like, for instance, the "round" tablets. Large texts of this type include *CHÉU* 100, Truro 1 (*AfO* 24 pl. xviif.), BM 14615 (*Mesopotamia* 5/6 300ff.), *ASJ* 8 346f., *TU* 12, *RA* 10 66 no. 68, and *MVN* 6 547. Only two of these tablets have the dates preserved, Truro 1 and BM 14615, both dated Šulgi 9 (but see C.B.F. Walker, *AfO* 24 123 who prefers Šulgi 36). *ASJ* 8 346f. is, as far as preserved, an exact duplicate of BM 14615, except for the area in i' 10' and a slightly different arrangement of the subscript. *CHÉU* 100, which has the same surveyors (apparently one from Umma, the other from Lagaš)- as BM 14615, has been collated by Durand *Catalogue EPHE* I p. 12 and pl. 10. Its subscript now reads in part: a-ša dšar_á ú a-ša lugal 'ki-sur-ra' gír-su^{ki}. BM 14615 viii 1f. (*Mesopotamia* 5/6 304) has to be read 'uš-gíd] da 'níg] gál-la gír-su^{ki}, according to collation and to *ASJ* 8 346f. These texts therefore do not represent a division of the gú-edin-na, as suggested by Pettinato, *Mesopotamia* 5/6 306ff., but simply a survey of holdings belonging to the crown, to the city and governor of Girsu, and to the temple of Šara in Umma, regardless of what other fields may have been in the area of the gú-edin-na. Minor texts with the same type of surveys are known from other places, e.g., *AO* 1806 (*MCS* 8 68f.),

8.2. Agricultural Texts in the O.I.

MVN 11 65, and HSS 4/2 27 from Girsu, BE 3 91 from Nippur, and UET 3 1366-67, 1369-70, 1385, UET 9 1072-73, and 1129 from Ur. These texts are either not dated or have their dates destroyed, except for UET 3 1366 and 1369 from Šu-Suen 9. For the terminology of the different types of soil and land, see provisionally Pettinato 1967 pp. 241ff.

8.2. Labor and Plow Animals

8.2.1. A 3354. Lagaš, AS 3.

173 1/3 guruš u₄ 1-šè
u₄-tuš-a un-ĪL
á sag-níg-ga-ra-ta engar dumu engar ù-
ub-ta-zi
īb-tak₄-ba u₄-tuš-a i-īb-túm
ki bù-lu₅-lu₅-ta
ba-zi
mu gu-za den-
lil-lá ba-dím

Line 3f. "The farmers (and) young farmers took (these) wages from the main account, the 'residence time' is brought with(?) the remainder."

8.2.2. A 2709. Umma, AS 4/12.

0.1 še amar ga giš
gud gišapin dgu-la
ugula ku-Īx₁ engar
ki arad-ta
kišib ur-dšul-pa-è
itu d^ddumu-zi
mu en-mah-gal-
an-na en dⁿnanna

ba-hun

seal: illegible

Line 1. The sign giš seems to be written over an erasure. Line 3: The sign x looks like GĪR or UG.

8.2.3. A 2775. Umma, AS 4/6-13.

8 guruš engar ša-gud
itu 8-šè itu šu-numun-ta
itu diri-šè
ki ab-ba-gi-na-ta
kišib ur-mes
a-gi-a gá-gá-dam
mu en-mah-gal-an-na
ba-hun

seal: ur-mes
dub-sar

dumu ur-d[ašnan]

8.3. še-ba kaš-Texts

8.3.1. A 2542. Umma, SS 2.

2/3 (bùr) iku še-ba ù kaš
5.1.2.7 1/2 síla gur
ur-dutu dumu al-la
a-ša pú-ur-IM
2/3 4/18 (bùr) iku 6 gur
5 dam da-a-ga
a-ša nunuz-ú-ga
2 1/3 (bùr) iku 12.3.2 gur sù
ur-dⁿu-muš-da ha-za-núm
2/3 2/18 (bùr) iku 7.0.1 gur
10 1 (bùr) iku sud
lugal-kù-zu dumu DÌM-na-a
2/3 (bùr) iku 6.0.1.5 síla gur
2/3 (bùr) iku sud
ur-nigín-gar simug
15 a-ša é-gir-gi₄-lu
šu-nigín 3 (bùr) iku maš tuku
šu-nigín 4 (bùr) iku maš nu-tuku
še-bi 37.0.1.2 1/2 síla gùr
iku gud apin-lá-e uru₄-a-ta ba-ra-zi
20 apin-lá kur₆-šè ha-la-a ba-ab-dah
a-ša gíd-da buru₁₄
a-ša a-pi₄-šál^{ki}
mu má dāra abzu
den-ki ba-ab-du₈

For the type of tablet, see discussion under 8.3.2. Lines 19f. "Were taken from the areas seeded by the tenancy oxen, the tenants had the shares added to the prebends."

8.3.2. A 5832. Umma, AS 7.

i 1 (bùr) iku še-ba ù kaš 10 gur
lugal-á-zi-da gudu₄
1/3 2/18 1/36 iku 3.2 gur
é-gi₄-a
5 1/18 iku 0.2 a-rá 1-kam
2/18 1/36 iku 0.3.3 a-rá 2-kam
2/18 iku 1.1 gur a-rá 3-kam
da-da dub-sar
2/18 iku 0.3
10 da-da-ga
a-ša lal-tur
2/3 4/18 iku 12 gur
2/3 iku sù
a-kal-la nu-bānda
15 5/18 iku 2.2.3 gur
lugal-é-mah-e šeš

- a-ab-ba
1/3 1/18 1/36 iku 3 gur
lugal-é-mah-e šeš
lugal-^{giš}kiri₆
3/18 1/144 iku 3 gur
20 lú-^dinanna-HÚL
1/3 1/18 iku 5 gur
^dimmà-ba-zi-ge
1/3 iku 3.2.3 gur
na-ba-sag₉
25 1/3 iku 2 gur
da-du-mu
ii 1/3 iku 2 gur
ur-gú-edin-na SIG₇.LAGAB
a-ša lal-mah
30 1 (bùr) iku 10 gur
ur-^den-líl-lá
a-ša tur
1/3 2/18 iku 2 gur UD-dè DU-a maš
nu-tuku
^lxl-mu SIG₇.LAGAB
35 a-ša [g]i-apin-kud-rá
1 (bùr) 1/3 iku 14.1 gur
a-d[a-x]-in
2/18 1/36 [ik]u 1 gur
lugal-é-mah-e sipa
40 1/18 1/36 iku 0.1.3
lú-^dir-ra nagar
1/18 1/36 iku 0.1 šu-eštar
3/18 iku 1.1.3 gur
lugal-é-mah-e gudu₄
45 1/3 iku 2.2.3 gur a-rá 1-kam
3/18 1/36 iku 1.2.3 gur a-rá 2-kam
ur-sipa-da engar
1/3 2/18 iku 4 gur
lú-kal-la sabra
50 1 (bùr) iku 11 gur
lú-ib-gal dumu sag-du₅?
a-ša ka-ma-ri
1/3 1/18 1/36 iku 14.1 gur
kù-ga-ni dumu ur-sig₅
55 1/3 3/18 iku 14.2.3 gur
KAS₄ dub-sar
a-ša ukú-nu-ti-bal-a-ri
iii 4/18 iku [] [gur]^l
A.IGI []
60 1/18 iku 1.1.3 gur
ur-^dšul-pa-è
1/144 iku 0.3 da-da sipa šáh
a-ša ^{giš}ma-nu
5/18 iku 7.2.3 gur
65 lugal-é-mah-e šeš al-la
1/18 1/144 1.2 gur
ì-pù-ul
3/18 iku 1.2.3 gur
ur-mes nu-bànda gud
70 4/18 1/36 iku 2.2.3 gur
ur-^dnidaba
3/18 1/36 iku 3.2.3 gur
lú-sag₉-ì-zu
4/18 iku 2.3 gur
75 ur-^dsuen sipa
a-ša LÁLxSAR a-ša lal-mah
1/3 iku 1.2.3 gur
lú-gi-na
1/3 1/18 1/36 iku 3.1.4 gur
80 lugal-e-ba-an-sag₉
1/3 4/18 iku 6.2.3 gur
a-rá 1-kam
3/18 iku 1.3.0 gur a-rá 2-kam
lugal-é-mah-e šeš al-la
85 1/18 iku 1.1 gur šà-igi-na engar
1 3/18 (bùr) iku 17 gur
lugal-á-zi-da gudu₄
1/3 1/36 iku 7.4 gur
iv a-gu-gu sipa
90 2/18 iku 0.4 ur-šu-kù-ga
1 1/3 1/18 (bùr) iku 41.3 gur
ur-^dnin-giz-zi-da lú-lunga
a-ša a-geštin-na
1 (bùr) iku 15 gur
95 uš-mu
a-ša sipa-da
1/36 iku 0.2 a-gu-gu sipa
a-ša ^dnin-ur₄-ra
1 (bùr) iku 15.1 gur
100 lu₅-lu₅ ì-du₈
a-ša ka-ma-ri
šu-nígín 18 2/3 3/18 iku
maš tuku
šu-nígín 1/3 3/18 iku UD-dè DU-
a maš nu-tuku
šu-nígín 266.4.1 še gur
šu-nígín 0.2.0 iku sù
maš nu-tuku
apin-lá a-ša giš-ì-ka
gud ^{giš}apin-60-a-kam
110 da umma^{ki}
mu hu-úh-nu-ri^{ki}
ba-hul

8.2. Agricultural Texts in the O.I.

This tablet and the preceding one belong to a group of Umma texts which give plot sizes associated with given amounts of grain described as še-ba ù kaš '(barley for) grain rations and beer'. These tablets can be classified in three groups:

a) Large tablets of from two to four columns (BIN 5 277; *Nebraska* 37; *Nikolski* 2 236; *Erlenmeyer* 91) with the suscript a-ša gíd-da buru₁₄ èš dil-dil ma-da "harvest/summer field surveys of individual shrines of the region." The grain is destined to 1) sá-dug₄ dingir-re-ne, and 2) to temple personnel (girsì-ga), gudu₄, scribes, and private individuals (lú dil-dil-me).

b) Two-column tablets (A 5242; Rhode Island School of Design 19.063 [unpubl., photo]) with only personal names (described in the subscripts as apin-lá) and field names following the plot areas and the grain amounts. Both tablets divide the fields into maš-tuku and maš-nu-tuku. The persons listed are the source of the grain, not its destination.

c) Small tablets with various operations dealing with grain qualified of še-ba ù kaš, e.g., MVN 4 4; JCS 28 223 no. 50; A 2542 (8.3.1).

The plot sizes vary between 1 and 18 iku, with a few instances of larger plots, and their

average is 7.62₁₀ iku. The values tend to cluster around the multiples of three. The total area involved is relatively modest, see table. The amounts of grain are not a simple function of the area. The averages can be seen in the table, but the individual values show an enormous dispersion, generally from 20 to 240 sila, but with a few cases around 500 and one case of 750. The only explanation for such variability is that the amounts given in the tablets are function of the yield, actual or estimated, of the various plots. It is unlikely that the grain amounts represent the whole harvest. The presence of the terms apin-lá, kur₆, and maš suggest that they represent rentals and shares due to temples and individuals, possibly after subtracting wages and cultivation costs and even other shares. In tablets which mention maš "rent" (Steinkeller 1981:113ff.), the maš-nu-tuku values are 58% of the maš-tuku values in the Rhode Island tablet, and 66% in A 5242. This seems to show that one third of the maš-tuku amounts is "rent." A 5832, which only includes one maš-nu-tuku amount of "grain put to dry" (line 33) is unclear in this respect. These tablets require further study.

Table 8.1. Areas and grain amounts in main še-ba ù kaš tablets (the fractions are decimal).

text	total productive area in bür	gur per bür average	date
Nebr. 37	18.83	14.22	Š 43
Rhode Isl.	7.19	9.38 4.46	Š 46
Nik 2 236	12.69	17.85 20.76	AS 1
A 5832	18.33	14.22	AS 7
BIN 5 223	22.65	13.13 16.82	[]

4. Grain Distribution.

8.4.1. A 2639. Umma, ŠS 8.

- 11.1 še-numun gur
- 11 gur á lú hun-gá
- 1.4 še kur₆-ra gur
- kišib ur-àm-ma
- 5 17 še-numun gur
- 10.3 gur á lú hun-gá
- kišib šeš-kal-la dumu TIR-gu
- 4 še-numun gur
- 9.1.3 gur á lú hun-gá
- 10 kišib lú-bànda^{da}
- 1 še kur₆-ra gur
- kišib lú-šul-gi-ra

- 73.0.4.2 sila gur
- še-ba ka-KU ù bahàr
- 15 kišib KA-dšarà
- 23.2.3 gur á má hun-gá
- kišib lugal-e-ba-an-sag₉
- 3.2 gur [še] i-šáh
- kišib kas₄
- 20 1.3.3 gur še i-šáh
- kišib gu-ú-gu-a
- 0.4.3 kišib a-tu
- 5.2.5 gur še giš-è-ta
- 18.0.2 gur UD.KA-ta
- 25 še ensí-ka ki ba-gar
- 10.3 gur sá-dug₄-ta

- še maš a-ša-ga ki ba-gar
 lú-^dšul-gi-ra šu ba-ti
 4.3.2 gur še-ba a-bal ki-sur-ra
 30 itu 7-kam
 šu-nigín 5.2.5 gur še giš-è-a-ta
 šu-nigín 78.0.2 gur še má-a si-ga-ta
 šu-nigín 39.1.3 gur še-numun-ta
 šu-nigín 86.3.2 sila gur sá-dug₄-ta
 35 gur₇ i-sum-ma-ta
 gir lú-^dšul-gi-ra
 mu má-gur₈ mah ba-dím

Although grain distributions with no direct reference to land or agricultural operations are not included in this text edition, one exception has been made for A 2639 because of the mention in it of še giš-è-a.

8.5. Apple Orchard.

- 8.5.1. A 5701. Lagaš, Š 44.
 55 HAR ^{giš}hašhur 0.0.3-ta
 5 HAR ^{giš}hašhur nu-lá
 é-nigín-na 1-kam
 47 HAR ^{giš}hašhur 0.0.3-ta
 5 9 HAR ^{giš}hašhur nu-lá
 é-nigín-na 2-kam
 70 HAR ^{giš}hašhur 9 sila-ta
 12 HAR ^{giš}hašhur nu-lá

- é-nigín-na 3-kam
 10 69 HAR ^{giš}hašhur 9 sila-ta
 15 HAR ^{giš}hašhur nu-lá
 é-nigín-na 4-kam
 76 HAR ^{giš}hašhur 7 sila-ta
 13 HAR ^{giš}hašhur nu-lá
 15 é-nigín-na 5-kam
 76 HAR ^{giš}hašhur 4 sila-ta
 58 HAR ^{giš}hašhur nu-lá
 é-nigín-na 6-kam
^{giš}hašhur-bi 16.4.0.3 sila gur
 20 ^{giš}kiri₆ tur lú-me-lám nu-^{giš}kiri₆
 58 HAR ^{giš}hašhur hi-a 3 sila-ta
^{giš}hašhur-bi 0.2.4.5 sila
^{giš}kiri₆ gu-la lú-KA-NI
^{giš}kiri₆ ka id tum-ma-al-la
 25 180 HAR ^{giš}hašhur 5 sila-ta
^{giš}hašhur-bi 3gur
^{giš}kiri₆ é-sag-da-na
 ur-sila-en-na nu-^{giš}kiri₆
 šu-nigín 20.1.4.8 sila ^{giš}hašhur gur
 30 ^{giš}kiri₆ káb-dug₄-ga
 mu si-mu-ru-um^{ki} lu-lu-bu
^{ki} a-rá 9-kam-ma-aš ba-hul

See section 7.5, specially 7.5.3.2.1, for this type of tablet.

8.3. The Grammatical Text BM 23331

The present text belongs to the type usually called "grammatical." Concretely, it belongs to the class which lists assorted words or phrases, sounding sometimes like a commentary (for the various types of Grammatical Texts, see MSL SS 1 72f.). It is published here, because it contains a quotations from FI 52 and other entries of interest.

BM 23331 = 97-5-15,9 is a lenticular tablet with the flat sided divided in two parts; each of them has two subcolumns, with no separating line between them. The convex side may have had five or six subcolumns, but it is mostly destroyed with few traces of text left. Paleography and orthography suggest an Old Babylonian date.

flat side, col. i

	hul-gál	<i>ki-is-pu</i>	
	an-ta	<i>iš-ti-ni-iš</i>	
	an-ta	<i>tap-pu-u</i>	
	si-išI	<i>i-tù-tum</i>	
5	he-ši	KL.MIN	
	he-Á	<i>kum-mu</i>	
	nuz	<i>pi-lu-ú</i>	
	nu-nu-uznuz	<i>li-bu</i>	
	nu-nuz-ú	<i>ka-ap-pa</i>	
10	nu-nuz-ú+nu-nuz-ú	<i>a-nu-nu-tum</i>	
	kur-ku	<i>'at¹-lu-lu</i>	
	kur-ku	<i>na-qa-ru</i>	
	bàd-kur-ku	<i>du-ru ul-lu-lu</i>	
	IM ^{mi} -huš	<i>ne-i-šú</i>	
15	gú-dù-a	<i>za-e-ru</i>	
	[b]ar-dù-a	KL.MIN	
	[]-l ^x -il	<i>x-tu-ru</i>	(x = QA, or a bad ŠU).
	[si]-il	<i>ša-la-pu</i>	
	[gu(?)-si-i]l	<i>'x¹ GU ša-la-pu</i>	
20	[ka-tar-s]i-il	<i>di-li-lu da-la-lu</i>	

col. ii

a-ša ^u KI.KAL.hi-rí-in	
ba-an-mú	<i>sú-uh-pu</i>

The Farmer's Instructions

	a-ša ú nu-me-a	
	ba-an-mú	ak-kam-ma-ta[m] ma-li
	a-ša	(blank)
	(space for ca. five lines, uninscribed)	
5	a-ša gud KU-ru-na	i-na (o.e.) A.ŠÀ GUD ra-ha-šu hup-p[u-x]
	a-ša giš ki-tag-ga	i-na A.ŠÀ APIN ra-ha-šu [()]
	GÁN uru ₄ ^{ur} -a	A.ŠÀ GUD e-re-šu
	še-numun gá-gá	ŠE.NUMUN za-ru-u
	še-numun é-tùr-ra	
	hé-ib-suhur	(blank)
10	in-e giš im-ma-ab-[dar]	pú šá pul-lu-ša []
	in-e ki-in-du	
	im-ma-ab-dar	er-se-tam ip-[]
	in-e igi sahar-ra ab-DU	i-na IGI []
		pul-lu-ša at-tap- ¹ [x]-(x)
	(end of column)	

convex side

(a) top of central column:

a-ša zag-bi-še ¹ x []	[]
a-ša-ga e []	[]
(rest of col. broken)	

(b) end of the first line of the column immediately to the left of a:

[]	[-d]u ² -ru
-----	-------------------------

(c) leftmost column:

	(broken)	
[igi]-ús-[x]	[]	[]
igi-ús-[x]	[]	[]
igi-túl-ak	[]	[]
igi-ib-ak	[]	[]
igi-suh	[]	[]
igi	[]	[]
igi	[]	[]
sag-dúb-ba	NE-[]	[]
sag-dúb-ba	sa-[]	[]
	(broken)	

9. TEXTUAL MATRICES

The following textual matrices follow the rules of the hypertext corpus of Sumerian texts of the "Sumerian Project" of the Oriental Institute. The symbols are as follows:

+	sign is present/unambiguous
.	sign is damaged, but recognizable
-	sign is omitted
o	space for sign is broken
x	unidentifiable sign

The symbols ? and ! are self-explanatory. The only convention not adopted here is the use of the symbol = to bind together the signs that form part of a single variation. Its use makes sense only in electronic versions, when a program is used to automatically analyze the textual variants. These matrices are *not* a paleographic transcription ("transcription diplomatique" in French) of the sources. The signs are assigned symbols according to the degree of certainty, not according to their state of preservation on the tablet. Thus a quite damaged sign that it is unambiguously, let us say, TAG, will be assigned a + symbol. There are minor discrepancies between the main text presented in 5.1 and the top lines of the matrices; these differences have been introduced in places where a slightly different text was more suitable to present a synopsis of the sources

001 u₄-u₁-uru₄.ru dumu-ni na mu-un-de₅-ga-àm

A	+	+	+	ra	+	+	+	o	o	o	o
B	.	.	+	ru	+	+	o	o	o	o	o
C	o	o	o	o	o	+	+	+	+	+	+
D	o	+	+	ru	+	+	+	+	+	+	.
E	o	o	o	o	+	+	+	+	+	+	.
A ₂	.	+	+	e	+	+	.	+	+	.	o
A ₃	.	+	.	e	+	+	+	+	+	.	o

002 a-šà dib-bé-da-zu-dè

A	+	+	+	+	+	+	o
B	o	.	+	+	+	.	o
C	o	o	o	o	o	o	+
D	o	o	+	+	+	+	o
E	o	o	o	.	+	+	+
A ₂	.	+	+	+	+	+	o
A ₃	+	+	+	+	+	+	o

003 e pa₅ du₆ dug-ù-dè igi kár-kár-ab

A	+	+	+	dug	+	dè	+	+	o	o
B	o	+	+	dug	+	d[è	o	o	o	o
C	.	+	.	o	o	o	.	+	kár	ka
E	o	.	+	dug	+	dè	+	+	kár	ab
A ₂	+	+	+	dug	+	dè	+	+	kár	o
A ₃	.	+	+	du ₆	-	dam	+	+	ka	o

The Farmer's Instructions

- 004 a-šà a-dé-a-zu- dè a-bi šà-ba nu- íl
 A + o o . + + - NI + + + ba nu o
 B o . + + + + ù x o o o o o o
 C + + + . . + - dè + + + ba ga-ab x
 E o o o o o o o o . + ba nu +
 A₂ + + + + + + - dè + + + bi nu o
 A₃ . + + + + + - dè + + + bi nu +
- 005 u4 a-ta im-mu-e-a-e₁₁-dè-a
 A + + + - + mu + + e₁₁ . +
 B . + + - + me + o o o o
 C + - + - + x - - e₁₁ . +
 A₂ . + + i + me - - e₁₁ + o
 A₃ + + + - + mu + - è + +
- 006 a-šà ki-duru₅-bi en-nu-un ak- ab ki-še-er a-ra-ab-tuku
 A + + + + + + + + ak x o . + + + + +
 B + + + + + + + + a[k o o o o o o o
 C + + + + + + + + k[a ab + + . + . + +
 E . . . o . o o . ak a + + o o o + +
 A₂ + + + + + + + + ak ab + + + + + . o
 A₃ + + + + + + + + nag ab + + + + + + +
- *D edge: ki-du-ru-bi (eras.) e-ja
- 007 gud suhúb gîr na-ra-ab-zukum-e
 A + suhúb + + + + . +
 B + suhúb + + + + . o
 C + suh[úb o o o o . +
 A₂ . suhub + + + + + o
 A₃ + suhub + + + + + +
- 008 ú-sag₁₁- bi ù-bí- zé a-šà ki-gar ù-bí-dug₄
 A + + - + + bi + + + . . + + +
 B + + - + + ba-e + + + . o o o o
 C + + a + o o o o o o o o o
 E o + - + o o + o o . + + + +
 A₂ + + - + + bi + + + + + + + +
 A₃ + + - + + bi + + + + + + + .
- 009 10-àm uruda.gín-sa₁ 2/3 ma-na-ta- sá-a-ab
 A + - + . + + + + + - + + +
 B + - + + + + + + + - + . o
 E + + - + + + + + + - + + +
 A₂ + - + + + + + + + - + + +
 A₃ + - + + + + + + . àm + + +
- 010 giš.al-šub-bé umbin gud ha-ra- šú-šú sa ha-ra-ab-lá-lá
 A + + + + + gud? + . - o o . + + + + +
 B + + + + + bi? + + - +! +! + + o o + +
 E + + . - . gud + + - + + + . . + + +
 A₂ + + + + + bi? + + ab + + + + + + + +
 A₃ + + - + + gu[d o . . o x + + + + o o

9. Textual Matrices

011 ki ka-sal-la-bi ú-tag ha-ra-ab-tag-tag

A	+	+	+	+	+	+	+	+	-	.	+
B	+	+	+	+	+	+	+	+	-	+	o
E	+	+	+	+	+	o	.	+	+	-	+
A ₂	+	+	+	+	+	+	+	+	+	+	+
A ₃	+	+	+	+	.	+	+	o	o	o	o

012 gú a-šà-ga ub-da 4-ba giš.al-e ha-ra-ab-nigin

A	+	+	+	+	+	+	ba	+	+	e	+	+	-	+
B	+	+	+	+	+	+	ba	+	+	e	+	+	+	+
E	+	+	+	+	+	+	ba	+	+	e	+	.	o	+
A ₂	+	+	+	+	+	+	bi	+	+	la	+	+	+	+
A ₃	+	+	+	+	+	+	bi	o	.	e	+	.	.	.

013 en-na a-šà-ga šeg₆-šeg₆-e- da téš a-ra-ab-si-ke-a

A	+	+	+	+	+	+	e	-	dè	+	+	+	+	ke	a
B	+	+	+	+	+	+	e	a	da	+	+	+	+	ge	e
E	+	+	+	+	+	+	e	a	-	+	+	+	.	o	ke
A ₂	+	+	+	+	+	+	gá	-	dam	+	+	+	+	ke	a
A ₃	+	+	+	+	+	+	e	-	da	+	+	+	.	+	ge

014 giš.šu-kár-zu sa ha-ra-ab-gi₄-a

A	+	+	+	+	+	+	+	+	+	+	da
B	+	+	+	+	+	+	+	+	.	o	
E	+	+	+	+	.	o	o	o	o	o	
A ₂	+	+	+	+	+	+	+	+	+	-	
A ₃	+	.	+	+	+	+	+	+	+	a	

015 giš.šudun-zu á-šita₄-a-bi ha-ra-ab-kéš

A	+	+	+	+	+	+	ba	+	+	-	+
B	+	+	+	+	+	+	bi	.	o	o	o
E	+	+	+	+	o	o	o	o	o	o	o
F	o	o	o	o	o	o	+	.	.	o	
A ₂	+	+	+	+	+	+	-	-	+	+	+
A ₃	+	+	+	+	+	+	+	-	+	+	+

016 kuš.usàn gibil-zu giš.kak-ta ha-ra-ab-lá

A	+	+	+	+	+	+	a	+	+	+	+
B	+	+	+	+	+	+	a	+	+	+	+
E	+	+	+	o	o	o	o	o	o	o	o
F	o	o	o	o	o	o	a	+	+	+	+
A ₂	+	+	+	+	+	+	ta	+	+	+	+
A ₃	+	+	+	+	+	+	-	+	+	+	+

017 kuš.usàn sumun-zu giš.mud lá-lá-a-bi

A	+	+	+	+	-	+	+	+	-	+
B	+	+	+	+	+	+	+	.	o	o
E	.	+	+	o	o	o	o	o	o	o
F	o	o	o	x	-	+	+	+	+	+
A ₂	+	+	+	+	-	+	+	+	-	+
A ₃	+	.	+	+	-	+	+	+	+	+

018	dumu gašam-ta dūg ha-ra-ab-ak-e	
A	om	
B	+ . ta dūg + + x o o	
F	o o ta dūg + + + + am ³	
A ₂	o + e-ne HI.UD + + + + en	
A ₃	+ + e-ne dūg + + + + e	
019	uruda.gín uruda.bulug uruda. šum-me giš.šu-kár-zu	
A	om	
B	+ + + + - šum-me - - + o o o	
F	o o o + + - šum-me - - + + + +	
A ₂	+ + + + . ù šum-me níg ak + + + +	
A ₃	+ + + + + - šum-me ak a - + + +	
B		á zu si ha-ra-ab-sá-e
F		o o o o ha-ra-ab-sá-o
A ₂		o o x si ha-ra-ab-sá-e
A ₃		- á + sag ha-ra-ab-ús-en - á + sag ha-ra - kéš
020	kuš.sag-kéš kuš.bar-e ₁₁ -dē kuš.ka-dù kuš.usàn sag-zu hé- ha-za	
A	om	
B	+ sag + + + o o o o + + + zu . - o o	
F	o o x + + + + + du ₅ o o + zu + - + +	
A ₂	+ KA + - + è + + + du ₁₀ + + x za + en + +	
A ₃	+ sag + + + è + + + dù ₁₀ + + + za x - + +	
021	gi.ba-an-duḡ-zu KA hu-mu-ra-ab-ak á kalag-ga hu-mu-ra-an-ak-e	
A	om	
B	+ + + . + KA . o o o o + + + + - + . o o o o	
F	o o o o + KA + + + ab + o . + - hu mu + an . o	
A ₂	+ + + + + K[A=d] i- + + an + + + + ba ha - + an + +	
A ₃	+ + + + + NAG=[+ + - un + + + + - ha - + ab + +	
022	á-áš a-ša-ga-zu da hé-en-gál kin-zu igi kár-ka-ab	
A	om	
B	+ . + + + + da + o o + + igi kár-ka-x	
F	o o o o o + da + + gál o o . kár-ka-ab	
A ₂	+ + + + - + é-za-a + + gi + + níg-nam mu-un-šub-bé-en	
A ₃	. o o o o o x + - gál + + - mu-un-šu[b	
023	gud giš.apin gud diri-ga a- ab-tuku-a	
A	+ - + + + - - - + + +	
B	+ + + + + + + - + . o	
F	o o o . + + + - + + .	
A ₂	+ + + + + - + ra + + +	
A ₃	o o o o + + + - + + +	
024	gud gud-da dur bí-ib-tu-lu-a	
A	+ + + dur bí ib + + -	
B	+ + + TU? bí ib + + +	
F	o o o o bí ib + + +	
A ₂	+ + + dur bi íb + + +	
A ₃	. o o T]U bí ib + + +	

9. Textual Matrices

025 giš.apin-bi giš.apin-na a-ab-diri

A	+	+	+	+	+	+	+	+	+
B	+	+	+	+	+	+	+	+	+
F	o	o	o	+	.	.	+	+	+
A ₂	+	.	+	+	+	+	+	+	+
A ₃	o	o	o	+	+	+	+	+	.

026 rēs-gār¹ giš.apin 1-e 180 iku-àm

A	.	.	.	.	e	+	+	-
F	o	o	+	.	+	a	+	.
I	o	o	o	o	o	o	.	+
A ₂	o	o	+	+	+	e	+	+
A ₃	o	o	o	.	+	-	+	.

027 za-e 144 iku-àm giš dù-ba-ab

A	+	+	+	.	-	o	.	ba	+
C	+	+	o	o	-	o	o	o	o
F	o	o	o	o	-	+	+	ba	+
I	o	o	o	o	o	o	o	o	+
A ₂	o	o	+	+	+	+	+	da	+
A ₃	o	o	+	+	+	-	+	ba	o

028 rá¹ šà-húl-la-gin₇ a-ra-ab-dím-e

A	om								
C	om								
F	om								
A ₂	o	x-á-ba	+	+	+	+	+	+	+
A ₃	á?	šà-húl-la	+	+	+	+	+	+	o

029 18 iku-ba 0.3 še gur ba-an-gá-gá

A	+	+	+	+	.	.	-	+	+	+	+
C	+	+	+	+	.	o	-	o	o	o	o
E	o	o	o	o	o	o	-	o	o	+	+
F	o	o	o	.	+	+	-	+	+	+	+
I	o	o	o	o	o	o	-	o	o	o	.
J	+	.	o	o	o	o	-	o	o	o	o
A ₂	+	+	+	+	+	+	àm	+	+	+	+
A ₃	+	+	+	+	+	+	àm	+	-	+	+

030 usu giš.apin 1-e a-šà giš.bar-dil-bi ù-bí-ak

A	+	+	+	+	e	+	+	+	+	+	+	+
C	+	+	+	+	o	o	o	o	o	o	o	o
D	o	o	.	+	ta	+	+	+	.	o	o	+
E	o	o	o	o	e	+	+	+	+	+	.	o
F	tr											
I	o	o	o	o	o	o	o	.	.	+	o	o
J	+	-	.	o	o	o	o	o	o	o	o	o
L	.	+	o	+	e	+	+	+	+	+	o	o
A ₂	+	+	+	+	ta	+	+	+	+	+	+	+
A ₃	+	+	+	+	e	+	+	+	+	+	+	+

The Farmer's Instructions

031		giš.bar-dil-bi giš.apin-túg-sig ₁₈ ù-bí-a-ak túg- gur-ra-ab														
C	-	+	o	o	o	+	+	+	+	o	o	-	o	o	o	o
E	-	o	o	o	o	o	+	+	+	+	+	-	o	o	o	o
F	tr															
J	-	+	+	+	+	o	o	o	o	o	o	-	o	túg	gur	.
L	-	o	o	o	+	+	+	+	.	+	+	-	o	o	o	.
A ₂	-	+	.	.	+	+	.	o	o	+	+	-	+	túg	gur	+
A ₃	a-šà	+	+	.	+	+	+	+	+	+	+	+	+	LAGABxU	+	+
032		giš ùr-ra-ab giš gi ₄ -a-ab giš peš-bí-ib														
C	o	o	.	+	+	+	+	+	+	.	+	+				
E	o	o	o	o	o	+	+	+	+	+	o	o				
F	tr															
J	+	+	+	-	+	.	o	o	o	o	o	o	o			
L	o	o	o	.	+	.	+	+	+	+	+	+	+			
M	o	o	+	+	+	o	o	o	o	o	o	o	o			
N	+	+	+	.	o	o	o	o	o	o	o	o	o			
A ₃	+	+	+	-	+	+	+	+	+	+	+	+	+			
033		ki-šúr-bi giš.níg-gul-ta giš.kak-UD-aš ù-bí-ak														
C	o	o	o	+	+	+	+	-	+	+	aš	.	o	.		
E	o	o	o	o	.	+	+	+	+	.	o	o	o	o		
F	tr															
J	+	+	+	-	.	.	o	o	o	o	o	o	o	o	o	o
L	o	o	+	-	+	+	+	.	+	+	aš	+	.	.		
M	o	+	+	-	+	+	+	x	o	o	o	o	o	o	o	o
N	+	+	+	.	o	o	o	o	o	o	o	o	o	o	o	o
A ₃	+	+	+	+	+	+	+	+	+	-	eš	+	+	+		
034		giš.mud giš.níg-gul-zu sag-za hé-ha-za níg al-di-šè na- du-un														
C	o	o	.	+	+	+	+	za	hé	+	+	ab	.	+	+	+
E	.	o	.	+	+	+	+	o	o	o	o	o	o	.	+	+
J	+	+	-	+	+	+	+	o	o	o	o	o	+	+	o	o
L	+	+	-	+	+	+	+	o	o	o	o	o	+	+	+	+
M	+	+	+	+	.	o	o	o	o	o	o	o	+	o	o	o
N	+	+	+	o	o	o	o	o	o	o	o	o	+	o	o	o
A ₃	+	+	+	.	o	.	+	zu	he	+	+	-	+	.	.	.
035		kin-ak- zu-a ugu-ba ù-bí-dé														
C	o	o	-	+	+	+	ba	-	+	+	dé					
E	+	o	a	+	-	+	o	-	o	o	o					
F	+	+	-	ta	-	+	bi	a	+	+	?					
J	om															
L	+	.	-	.	.	.	o	-	+	o	o					
N	+	+	.	o	o	o	o	-	o	o	o					
A ₃	+	+	a	+	-	+	ba	-	+	+	DU					
036		kin-ak- zu-šè gá-la nam-ba-an-dag-ge														
C	o	o	o	.	+	+	+	+	+	+	+	+	+	+	-	
E	+	+	-	+	+	+	.	o	o	o	o	o	o	o	o	
F	+	+	-	+	+	+	.	+	+	+	+	+	+	+	-	
J	om															
L	+	+	o	o	o	o	o	o	o	o	o	o	o	o	o	
N	+	+	-	+	o	o	o	o	o	o	o	o	o	o	o	
A ₃	+	+	a	+	+	+	+	+	+	+	+	+	+	+	en	

9. Textual Matrices

037	a-ša kin-zu ak na-an-na-ab-bé
E	+ + + z]u + + . o o o o
F	. + + zu + + + + + -
J	om
L	+ + + zu . o o o o o o
N	+ + + o o o o o o o
A3	. + + za - + + + + en
038	u ₄ mul an-na šu im-ma-ab-du ₇ -a- ta
E	+ + . + + o o o o o o
F	o + + + + + + + a +
J	+ + + + . + + o o o o
L	+ + + o o o o o o o
N	. . o o o o o o o
A ₃	+ + + + . + + + + ra +
039	10-àm á gud a-ša zi-zi-i-da-še igi-zu nam-ba-e-gíd-i
E	+ + o o o o o o o + o o o o o o o
F	o - . + + + + + da + + za - + + . gíd i
J	+ x + + + + . o o o o + zu - + + + . o
L	+ - + + + + o o o o o + zu - . o o o o
O	+ - . o o o o o o o + o o o o o o o
A ₂	+ - x x x o o o o o o o o o o o o
A ₃	+ + + + + + + - dè o + zu še + + + gub bu
040	giš.al dù-a-bi ha-ra-ab-ak-e
E	+ + o o o o o o o
F	o . + - bi + + + + +
J	. . + a bi + + . o o
L	- + + - bi o o o o o
O	+ + . o o o o o o o
A ₂	+ + + o o o o o o o
A ₃	+ + + - e + + + + +
041	a-ša uru ₄ .ru-da-zu-dè
E	+ + o o o o o
F	o o uru ₄ ru + + +
J	o o uru ₄ ru + + +
O	+ + uru ₄ ru o o o
Q	+ + uru ₄ ru + + +
A ₂	+ + uru ₄ o o o o
A ₃	. + dib bé + + +
042	giš.apin-zu gu ha-ra-ab-dúb
E	+ + o o o o o o
F	o o o . + + + .
J	o o o o . + + +
O	+ + + + o o o o
Q	. + + + + + - +
R	o o . . o o o o
A ₂	+ + + + o o o o
A ₃	. . + + . + + +

The Farmer's Instructions

043	giš.ka-šú	giš.apin-na-zu	kuš.im-du ₅ -mu	šub-ni	
E	+	+	o	o	o
F	o	o	o	o	.
O	+	+	+	.	+
Q	+	+	+	+	+
R	o	o	.	+	o
A ₂	+	+	+	+	+
A ₃	+	+	.	.	+
044	giš.dam-zu	giš.kak-sal-la	šub-ni		
E	+	+	o	o	o
F	o	o	o	o	+
O	+	+	+	+	o
Q	+	+	+	+	.
R	o	o	+	+	o
A ₂	+	+	+	+	+
A ₃	+	+	+	+	+
045	giš.li-um-zu	á	hé-	tál-tál	ab-sín-
E	+	+	o	o	o
F	o	.	.	o	o
J	o	o	o	o	o
O	+	+	+	+	+
Q	+	.	+	+	+
R	o	o	+	+	o
A ₂	+	+	+	+	+
A ₃	+	.	.	+	+
046	sag 1 ninda	uš	ab-sín 8-àm	gub-ba-ab	
E	o	o	o	o	o
F	-	.	+	uš	-
J	-	+	+	uš	-
O	-	+	+	uš	-
Q	-	+	+	uš	-
R	o	o	o	uš	-
A ₂	-	+	+	ta	àm
A ₃	sag	+	+	-	àm
047	ab-sín	dúr-dúr-ru-na	še-bi	gú	a-ab-gíd
F	ab-sín	KU	KU	-	+
O	ab-sín	KU	KU	+	+
Q	ab-sín	BU	BU	-	+
R	o	sín	BU	o	o
A ₂	absín	KU	KU	+	+
A ₃	ab-sín	BU	BU	+	+
048	a-šà	uru ₄ .ru-da-zu-dé			
F	+	+	+	+	+
O	om				
Q	+	+	+	+	+
A ₂	+	+	+	+	+
A ₃	o	.	+	+	+

9. Textual Matrices

049	lú še-numun gar-ra-zu	igi-zu gar-	ni
F	+ + + + + zu - + - + o o		
J	+ o . o o o o o o o o o		
O	+ + + + + zu - + + o o o		
Q	+ + + + + za - + + + - +		
A ₂	+ + + + + zu uš + + + - +		
A ₃	o + + + + - - + + + ra +		

050	2 šu-si-ta-àm d.ašnan	hé-en-šub
F	+ + + + + . o o o o	
I	o o o o o o o o AN + + .	
J	tr	
O	+ + + + + . o o o o	
Q	+ + + + - + + - + + +	
A ₂	+ + + + + + + - + + +	
A ₃	o o . + + + + - + - +	

051	1 ninda uš-ta	1 gín še	ha-ra-	gar
F	+ + + + - 1 gín še - + + - gar			
I	o o o o o še 1 gín àm + + - gál			
J	o o o o o o gín še - + + o o			
O	. . . - - 1 gín še e . o o o			
Q	+ + + - - 1 gín še - + + - gar			
A ₂	+ + - + àm še 1 silà - + + ab gar			

052	tukum-bi še-numun	a-tur-ra nu-ub-suhur
F	+ + + + - a tur + + o o	
I	+ + + + - a tur + + - suhur	
J	. o + + o o tur - + + si[	
Q	+ . . . na a tur + + + suhur	
R	. + + + o o o o + + o	
A ₂	+ + + + - é tūr + + + suhur	
A ₃	. + + + - a tūr + o o o	

053	giš.níg-ku ₅ giš.eme giš.apin-na-zu kúr-ra-ab											
F	+	+	+	+	+	+	+	o	o	o	o	o
I	+	+	+	-	+	+	+	+	+	.	o	o
J	-	+	+	+	.	+	.	o	o	o	o	o
N	.	o	o	o	o	o	o	o	o	o	o	o
Q	.	+	+	+	.	-	+	+	+	+	+	+
R	o	o	o	o	o	+	+	+	+	o	o	o
A ₂	+	+	+	+	+	+	+	+	+	+	+	+
A ₃	-	.	+	+	+	-	+	+	+	+	+	+

054	tukum-bi dur a-ab-tu-lu	dur tur-ra-ab
F	+ + + - + o o o o o o o	
I	+ + + + - + + . tur - .	
J	. + . - . o o o o o o o	
N	. o o o o o o o o o o o	
Q	+ . . . + + + + ur + -	
R	o . + - + o o o o o o o	
S	o . + o o o o o o o o o	
T	o o . o o o o o o o o o	
U	. o o o o o o o o o o o	
A ₂	+ + + + + + + tur + +	
A ₃	+ + + - + + + + tur + .	

The Farmer's Instructions

055	ki	ab-sín	si-sá	i-uru ₄ .ru-a	ab-sín	giš.šibir	uru ₄ .ru-	ab
F	o	ab-sín	+	+	-	+	a -	ab-sín o o o o o
I	+	ab-sín	+	+	-	+	a -	ab-sín - . + - ra +
N	+	ab-sín	o	o	o	o	o o o o o	o o o o
Q	+	ab o	o	.	-	+	a -	ab-sín - + - + - +
R	o	o	o	+	+	+	o	o o o o o
S	o	o	sín	+	+	+	.	o o o o o o o o
T	o	o	o	o	+	+	.	o o o o o o o o
U	+	ab-sín	o	o	o	o	o o o o o	o o o o
A ₂	+	absin	+	+	+	+	-	ab absin + + + - +
A ₃	+	ab-sín	+	+	-	+	+	ab ab-sín + + + a +

* traces of an unidentified sign, after šibir, in A₂.

056	ki	ab-sín	giš.šibir	i-uru ₄ .ru-a	ab-sín	si-sá	uru ₄ .ru-	ab
F	.	ab-sín	-	+	-	+	+	ab-sín + + + o o o
I	+	ab-sín	-	+	-	+	+	ab-sín + + + o o o
N	+	ab-sín	x	o	o	o	o o o o o	o o o
Q	+	ab o	-	.	+	.	.	ab-sín + + + + - +
R	o	o	o	+	+	o	o o o o o	sín + + o o o o
S	o	o	sín	-	+	+	.	o o o o o o o o
T	o	o	o	o	+	+	.	o o o o o o o o
U	+	ab-sín	o	o	o	o	o o o o o	ab o o o o o o o
V	o	o	o	o	o	o	o o o o o	sín + o o o o o o
A ₂	+	absin	+	+	+	+	-	ab absin + + + + - +
A ₃	+	ab-sín	+	+	-	+	+	ab ab-sín + + + + + +

057	ab-sín	si-sá			gú-	tu-	lu	gú-	TAG		mu-ra-			gá-gá		
F	ab-sín	+	+	-	gú	tu	lu	gú	.	o	o	o	o	o	o	o
I	ab-sín	+	+	-	gu ₄	ku	ru	gu ₄	+	-	+	-	-	+	+	-
N	ab-sín	+	+	o	o	o	o	o	o	o	o	o	o	o	o	o
Q	ab-sín	+	+	-	gú	tu	lu	x	-	-	+	+	-	+	+	-
R	o	o	+	.	-	gu ₄	tu	lu	o	o	o	o	o	o	o	o
S	om															
T	o	o	o	o	o	x	ku	ru	x	o	o	o	o	o	o	o
U	ab-sín	o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
V	o	o	o	o	o	o	tu	lu	gú?	+	-	+	o	o	o	o
A ₂	absin	+	+	-	gu ₄	ku ₅	-	gu ₄	+	nu	+	+	ab	.	?	o
A ₃	ab-sín	+	+	bi	dur	tu	lu	dur	+	hu	+	+	-	+	+	ne

058	ab-sín	lú-gú-	zu	si		ha-ra-ab-sá				
F	ab-sín	+	gú	+	+	sá	+	o	o	o
I	ab-sín	+	gú	+	+	-	+	+	+	+
Q	ab-sín	o	o	o	.	-	+	+	+	+
S	o	o	.	gú	+	+	-	+	o	o
T	o	o	o	o	o	.	-	+	o	o
V	o	o	o	o	o	+	-	+	.	o
A ₂	absín	+	gú	+	+	-	+	+	+	+
A ₃	ab-sín	+	gu ₄	+	+	-	+	+	+	o

059	ab-sín	ab-ki-iz-bi				DU-a	gán	kud-rá-zu	uru ₄ .ru-	ab						
F	ab-sín	+	+	+	-	.	o	o	o	o	o	o	o	o	o	o
I	ab-sín	+	+	+	ke ₄	+	+	+	+	da	-	+	-	-	x	
Q	ab-sín	o	.	.	.	-	+	+	+	+	rá	+	+	+	-	+
S	o	o	+	+	+	+	-	+	+	o	o	o	o	o	o	o
V	o	o	o	.	+	+	-	+	+	+	+	rá	.	o	o	o
*A ₂	absin	+	+	+	+	-	+	+	absin	gilim-ba	[x (x)]	giš.kud-rá	x	[...]		
A ₃	ab-sín	+	+	+	+	-	+	+	+	+	da	-	+	+	a	+

9. Textual Matrices

060 lag-bi ha-ra- de₅-de₅

F	-	+	+	+	o	o	o	o
I	-	o	.	+	+	-	+	+
Q	-	.	.	+	+	-	+	+
S	-	o	.	+	+	o	o	o
V	-	o	o	+	+	-	+	o
A ₂	sig ₄	+	+	.	o	o	o	o
A ₃	-	+	+	+	+	+	+	+

061 ki sahar ús-bi ab-sín ha-ra-ni-ib-ra

F	+	.	+	bi	o	o	o	o	o	o
I	o	o	o	b]i	+	+	+	+	+	+
Q	o	.	.	o	+	+	+	+	+	.
S	o	o	.	bi	+	+	+	.	o	o
V	o	o	o	b]a	+	+	+	+	+	o
A ₂	+	+	+	o	o	o	o	o	o	o
A ₃	+	+	+	bi	+	+	+	+	+	o

062 ki sahar ka-tab-bi ab-sín ha-ra- sig-sig
 I o o o o o o . + + - - sig sig
 Q + + + + bi + + + + - - sig sig
 S o o . + ba + + + . o o o o
 V o o o o o + + + + o o o o
 A₂ + + o o o o o o o o o o
 A₃ + + + + bi + + + + ni ib ra

063 henbúr-sè a-ra-sag

Q	+	+	+	+	+
S	o	o	+	+	o
V	o	o	+	+	o
A ₂	.	o	o	o	o
A ₃	+	+	+	.	+

064 u₄ henbúr-e ki im-ma-ab- dar-ra-ta

Q	+	+	+	+	+	ab	+	+	+
S	o	o	o	.	+	+	ab	+	+
U	+	+	o	o	o	o	o	o	o
V	o	.	.	+	+	ab	.	o	o
A ₂	+	+	+	o	o	o	o	o	o
A ₃	+	+	o	o	.	ta?	+	+	+

065 sizkúr d.nin-kilim-ke₄ dug₄-ga-ab

O	o	+	+	+	+	-	o	o	o
Q	+	+	+	+	+	-	+	+	+
S	o	o	o	.	+	-	+	o	o
U	+	+	o	o	o	o	o	o	o
V	o	o	.	.	+	-	+	.	o
A ₂	+	+	.	o	o	o	o	o	o
A ₃	+	+	o	o	o	a	+	+	+

The Farmer's Instructions

066 zú bir₅.mušen-ra bal-e- eb
 E + . o o o o o
 O + . + ra . o o o
 Q + + + ra + e - +
 U + + + ra o o o o
 V o o . e + a ? o
 A₂ + + + a + o o o
 A₃ + + + ra + e NE o

067 u₄ še ka-sal-la ab-sín-na-ka a-ab-điri
 E + + + o o o o o o o
 O + - + + + ab-sín . o o o o
 Q + + + + - ab-sín + ka + + +
 U + + + + + ab o o o o o o
 V o o o o . ab-sín - ke₄ + . o
 W + . o o o o o o o o o o
 A₂ + + + + + absín + ka + + o
 A₃ . + + . + ab-sín - ka . . .

*In Nippur sources, except E, 67 + 68 = 1 line.

068 a numun sag-gá-ke₄ dug₄-ga-ab
 E + + . o o o o o
 O + + + + ke₄ o o o
 Q + + + + ke₄ + + +
 U + + + o o o o o
 V om?
 W o o o o o o o o
 A₂ + + + + ka + + o
 A₃ . + + + ke₄ + + +

068a [u₄] ʔe¹ gi.KID.MÁ.ŠÚ.A àm-du₇-a a dug₄-ga-[ab?]
 * doublet of 69, found only in A₂.

069 u₄ še gi.muru₁₂- ba ab-gub-ba a dug₄-ga-ab
 E + + + K[ID o o o o o o o
 O + + + KID.MÁ.ŠÚ.A + o o o o + + +
 Q + + + KID.MÁ.ŠÁ.GA + - + + + + +
 U . o . - MÁ.ŠÚ o o o o o o + . o
 V o o o o M]Á.ŠÁ.GA o o o o o o o o
 W + + + . o o o o o o o o o o
 A₂ + + + KID.MÁ.ŠÚ.A + a + + + + + o o
 A₃ o o . KID.MÁ.ŠÚ.A - a + + o o . + o

070 še lillan-ba a dug₄-ga-ab
 E + + ba + o o o
 O + . o o o o o
 Q + + ba + + + +
 U om?
 W + . o o o o o
 A₂ + + bi + + + +
 A₃ . + bi + + + +

9. Textual Matrices

071		u ₄	še	luh-ha	an-sù-a	a	na-ab-bé-en	sa-ma-ná-áš	ba-	gig	
E	+	+	luh	+	+	o	o o o	o o o	o o o	o o o	o o
O	+	+	luh	+	+	x	o o o	o o o	+	+	na o o o o
Q	+	+	luh	+	+	sù	+	+	+	+	ná aš + - +
U	o	o	o	+	+	o	o o o	o o o	+	.	o o o o o
W	+	+	.	o	o	o o o o	o o o	o o o	o o o	o o o	o o
A ₂	+	+	lu	+	am si	+	+	+	+	+	na aš + e +
A ₃	+	+	luh	+	ab si	- a	+	+	+	-	+ na šè + - +

072	u ₄	še	bir-	ak-dè	a-	ab-du ₇ -a	a	dug ₄ -ga-ab
E	+	+	bir	+	+	o o o	o o o	o o
O	+	+	bir	+	+	- . o	o o o	o o
Q	+	+	bir	+	+	a + +	+ + +	+ +
W	+	.	o	o o	o o o	o o o	o o o	o o
A ₂	+	+	HI	+	+	ba + +	+ + +	+ +
A ₃	.	+	bi-ri	+	+	a + +	+ + .	+ +

073	giš.ba-an-ba	1 sila še	kù-dun	ba-	tuku-tuku
E	+ + + + -	še 1 sil[a o	o o	o o	o o
F	tr				
O	+ + + + -	1 sil]là še o	o o	o o	o o
Q	+ + + + -	1 silà še -	kù +	+ -	+ +
T	o o o o -	o sil]à še àm	ku o	o o	o o
A ₂	+ + + +	U 1 silà ta -	ku +	+ an	+ +
A ₃	. + + + -	1 silà -	àm ku +	+ an	+ +

074	še	gur ₁₀	gur ₁₀	ru	da	zu	dè	še	ur ₅		nam	ba	gúr	e	en
E	+	+	+	+	+	o	o	o	o	o	o	o	o	o	o
F	+	+	+	+	+	+	+	+	o	o	o	o	o	o	o
O	+	+	+	+	+	+	+	+	o	o	o	o	o	o	o
Q	+	+	+	+	+	+	+	+	ur ₅	-	+	+	gúr	+	+
T	o	o	o	o	o	+	+	+	ur ₅	o	o	o	o	o	o
W	+	+	+	-	+	.	o	o	o	o	o	o	o	o	o
Z	+	.	o	o	o	o	o	o	o	o	o	o	o	o	o
A ₂	+	+	+	+	+	+	+	+	ur ₅	gúr	+	+	ak	+	-
A ₃	.	+	+	-	+	+	+	+	ur	-	+	+	gúr	+	-

075	u ₄	á	ba	ka	gur ₁₀	gur ₁₀	ra	ab
E	+	.	+	+	o	o	.	-
F	+	+	+	+	+	o	o	o
O	+	+	+	+	o	o	o	o
Q	+	+	+	+	+	+	ra	-
T	o	o	o	.	+	+	o	o
W	+	.	.	o	o	o	o	o
Z	+	+	o	o	o	o	o	o
A ₁	o	.	+	+	+	+	ra	-
A ₂	+	+	+	+	+	-	ru	a
A ₃	o	o	o	+	+	+	ru	-

The Farmer's Instructions

076 TAK₄.IM 1-e ù lú še.zar kéš-da 1-àm
 E . . + + . o o o o o o o
 F TAK₄ + + + + o o o o o o o
 O . . o o o o o o o o o o o
 Q SU + + + + + + + + 1 e
 T o o o o o o o + + . o o
 W TAK₄ + . o o o o o o o o o o
 Z . + . o o o o o o o o o o
 A₁ o o . + + + - + + + 1 àm
 A₂ TAK₄xIM! + + - + + + + + 2 àm
 A₃ o o o o o + + + . o o o

077 ù lú 1-e igi-ni-šè zar hu-mu- na-ab-DI- e
 E + + + + . o o o . + + o o o o o
 F + + + + + + + - + + + - na + o o
 T o o o o o . + - + + + - o o o o o
 W . o o o o o o o o o o o o o o o
 Z + + o o o o o o o o o o o o o o
 A₁ o o . + + + + - + + + - na + DI e
 B₁ . . o o o o o - o o o o o o o o
 A₂ + + + + + + + še + + + un na + tag ge
 A₃ . + + + + . o o o o + - ra + x -

078 3-àm hu-mu-ra-ab- gur₁₀-gur₁₀-re
 E + + + . o a]b + + r[e o
 F . + + + + + + + o o
 T o o o o o a]n + . o o
 Z + + . o o o o o o o o o
 A₁ o o . + + ab + + re -
 B₁ + + o o o o o o o o o
 A₂ + + + + + ab + + ru ne
 A₃ o + + . o o . . - ne

079 lú še de₅-de₅-ga-zu še šu-huz na-an- ak-e
 E + + + . o . + + + + o o o o
 F + + + 0 ga - + + + + + - + o
 X o o o o ge - + + + + + - + +
 Z + + . o o o o o o o o o o o
 A₁ o o o o x - + + + + + - + +
 B₁ + + . o o o o o o o o o o o
 C₁ + + + + ge - + o o o o o o o
 A₂ + + + + ga zu + - + + + + +
 A₃ + + + + ge o o o o o o an + .

080 še.garadin-e še na-ab-si-il-si-il-le-e- ne
 E - + e + o o . + + + - - ne
 F - + e + + + + + + + e o
 X o o o . + + + + + + + - -
 Z + + e o o o o o o o o o o
 A₁ + o o o o o o . + + + e ne
 B₁ + . o o o o o o o o o o o
 C₁ + + e + + + o o o o o o o
 D₁ + . o o o o o o o o o o o
 A₂ + + na + + + + + + - + dè en
 A₃ - + na + + + . . + - + - ne

9. Textual Matrices

081 kin u₄-da-zu u₄-tur-ra-gin₇

E	+	+	+	.	+	+	+	+
F	+	+	.	.	.	+	+	o
X	o	o	o	o	o	o	+	+
Z	+	+	+	.	o	o	o	o
A ₁	tr							
B ₁	+	+	o	o	o	o	o	o
C ₁	+	+	+	+	+	+	o	o
D ₁	+	+	+	o	o	o	o	o
A ₂	+	+	+	+	+	+	-	+
A ₃	.	+	+	+	+	.	o	+

082 usu di₄-di₄-la-zu-ne ù lú še de₅-de₅-ga-zu-ne

E	+	+	+	+	+	+	+	+	.	o	o	o	o
F	+	+	+	o	+	+	+	+	+	+	o	o	o
X	o	o	o	o	o	o	+	+	+	.	o	+	? ?
Z	+	+	+	o	o	o	o	o	o	o	o	o	o
B ₁	+	o	o	o	o	o	o	o	o	o	o	o	o
C ₁	+	+	+	+	.	o	+	+	+	o	o	o	o
D ₁	+	+	.	o	o	o	+	+	+	o	o	o	o
A ₂	+	+	+	+	+	+	+	+	+	+	+	+	+
A ₃	+	+	+	e	?	+	+	+	+	+	+	-	+

083 šid- bi du₆-ul-la-ab zar-re-eš ná-a- ab

E	+	-	+	o	+	+	.	-	+	-	éš	+	a	ab
F	+	-	+	+	+	+	+	-	+	-	éš	+	a	o
X	o	o	o	o	o	o	o	o	+	re	eš	+	a	o
Z	+	-	+	+	o	o	o	o	o	o	o	o	o	o
B ₁	+	-	+	+	o	o	o	o	o	o	o	o	o	o
C ₁	+	-	+	+	+	-	+	+	o	o	o	o	o	o
D ₁	+	-	+	+	+	o	o	o	o	o	o	o	o	o
A ₂	+	-	+	+	+	+	+	+	še	+	re	eš	+	bí ib
A ₃	+	da	+	+	+	o	.	-	+	re	eš	+	bí	-

084 kin-zu mí-zi ha-ra-ab-dug₄

E	.	.	o	o	+	+	ab	+
F	.	+	+	zi	+	+	an	o
X	o	o	o	o	.	+	an	.
Z	.	.	o	o	o	o	o	o
B ₁	+	+	o	o	o	o	o	o
C ₁	+	+	+	zi	o	o	o	o
D ₁	+	+	+	zi	o	o	o	o
E ₁	o	o	.	zu	+	+	an	.
A ₂	+	.	.	zi	+	+	ab	o
A ₃	+	+	+	zi	.	o	o	+

085 dabin sumun-e tuku-a-ta

E	o	o	o	+	+	+
F	dabin	+	e	+	o	o
X	o	o	o	.	+	.
B ₁	dabin	+	o	o	o	o
C ₁	dabin	+	e	o	o	o
D ₁	dabin	+	e	.	o	o
E ₁	dabin	+	e	+	+	.
A ₂	še	+	e	+	+	o
A ₃	dabin	+	a	+	+	+

*A₃ 85 + 85a.

The Farmer's Instructions

085a ka -gu₇-zu-šè lú še giš na-ab-ra-ra-an

E	o	o	o	o	o	+	+	.	.	+	+	.
F	ka	.	o	o	.	.	.	o	o	o	o	o
X	o	o	o	o	.	+	+	.	.	+	+	-
Y	o	o	o	o	o	o	o	o	+	+	+	+
B ₁	ka	+	+	o	o	o	o	o	o	o	o	o
C ₁	ka	+	+	šè	o	o	o	o	o	o	o	o
D ₁	ka	+	+	o	o	o	o	o	o	o	o	o
E ₁	gu ₇	+	+	šè	+	+	+	+	+	o	o	o
A ₂	gu ₇	+	+	uš	+	+	+	o	o	o	o	o
A ₃	o	.	+	šè	-	+	+	+	+	+	+	-

086 še.zar-ra ne-ha-ab

E	o	o	o	o	+	+
F	+	+	+	+	.	o
X	o	o	o	o	.	+
Y	o	o	o	o	o	+
B ₁	+	+	o	o	o	o
C ₁	+	+	+	.	o	o
D ₁	+	+	+	.	o	o
E ₁	+	+	+	+	+	o
A ₂	+	+	+	+	o	o
A ₃	+	?	?	+	.	+

087 sizkúr še.zar-ra u₄-šú-uš-e ha-ra- dug₄

E	o	o	o	o	+	+	+	+	+	+	o	o
F	+	+	+	+	+	+	+	+	+	+	o	o
Y	o	o	o	+	+	+	+	+	+	.	-	+
B ₁	.	-	+	o	o	o	o	o	o	o	o	o
C ₁	+	+	+	o	o	o	o	o	o	o	o	o
D ₁	+	+	o	o	o	o	o	o	o	o	o	o
E ₁	+	+	+	-	+	-	+	+	+	.	o	o
A ₂	+	o	o	o	o	o	o	o	o	o	o	o
A ₃	.	o	o	o	+	+	+	-	+	+	ab	+

088 u₄ še al-e₁₁- dè-en-na-zu-dè

F	+	+	al	è	-	dè	+	+	o	o
Y	o	o	o	lá	e	da	-	-	+	+
C ₁	om									
D ₁	om									
E ₁	+	+	al	e ₁₁	-	dè	-	+	.	o
A ₂	+	+	ab	e ₁₁	o	o	o	o	o	o
A ₃	o	o	al	e ₁₁ ?	-	-	+	+	+	-

089 lú še lá-lá- zu-ne 30 gín ha-ra-an-ak-ak

F	+	+	+	+	-	-	+	+	+	+	+	+	ab	o	o
W	tr														
Y	o	o	o	o	o	o	o	o	o	.	+	+	an	+	+
C ₁	+	+	+	.	o	o	o	o	o	o	o	o	o	o	o
D ₁	+	+	+	.	o	o	o	o	.	o	o	o	o	o	o
E ₁	.	+	+	+	e	da	+	+	+	+	+	+	an	+	+
F ₁	o	o	o	o	o	o	o	+	+	.	o	o	o	o	o
A ₂	om														
A ₃	om														

9. Textual Matrices

090 kislāh-zu ki-gar dug₄-ga-ab

F	+	+	+	+	+	+	o
W	.	.	.	o	o	o	o
Y	o	o	o	o	.	.	+
D ₁	+	+	o	o	o	o	o
E ₁	o	+	.	+	+	+	+
F ₁	<i>om 90-93</i>						
A ₂	<i>om</i>						
A ₃	.	+	.	.	+	+	+

091 har-ra-an-gur-zu si sá-sá-ab

F	+	+	+	+	+	+	o	o
W	.	.	.	.	o	o	o	o
Y	o	o	o	o	.	+	.	+
D ₁	+	+	+	o	o	o	o	o
E ₁	o	o	o	+	+	+	+	+
A ₂	+	+	.	o	o	o	o	o
A ₃	+	+	+	+	-	-	+	+

092 giš.mar-gíd-da-zu si ha-ra-ab-sá

E	o	.	o	o	o	o	o	o	o
F	.	+	+	+	+	+	.	o	o
M	+	+	+	+	+	+	.	o	o
W	.	.	.	.	.	o	o	o	o
Y	o	o	o	o	.	+	+	+	-
D ₁	+	+	.	o	o	o	o	o	o
A ₂	+	o	o	o	o	o	o	o	o
A ₃	+	+	+	+	+	+	+	+	+

093 gud giš.mar-gíd-da-zu mur gu₇-bí-ib

E	+	+	.	o	o	o	o	o	o
F	o	o	o	o	o	o	o	.	.
M	+	+	.	.	.	o	o	o	o
W	+	+	+	+	+	+	+	o	o
Y	o	o	o	o	o	o	.	.	+
D ₁	+	+	o	o	o	o	o	o	o
A ₂	x	o	o	o	o	o	o	o	o
A ₃	+	+	+	+	+	+	+	+	+

093a giš.šu-kár-zu ha-ra-[]

F	+	+	+	+	+	+	o	o
W	+	+	+	+	+	.	o	o
D ₁	+	o	o	o	o	o	o	o
G ₁	.	+	+	+	+	+	x	o
A ₂	.	o	o	o	o	o	o	o
A ₃	<i>om</i>							

*F after 91.

094 su₇ dug-a-zu u₄ 5-àm ha-ba-ne-ha

E	+	+	+	+	+	+	o	o	o
F	o	o	o	o	o	o	.	+	+
W	.	.	.	.	+	+	o	o	o
D ₁	+	.	o	o	o	o	o	o	o
F ₁	o	o	o	o	+	+	+	o	o
G ₁	.	+	+	+	+	+	.	.	.
A ₃	<i>om</i>								

* last sign from B3.

The Farmer's Instructions

095 su₇ bad-rá- zu-dè níg-ur₅-ra dug-ni

E	+	+	+	da	+	+	+	o	o	o	o
F	o	o	o	o	o	+	+	ur ₅	+	+	+
W	.	+	+	-	+	+	o	o	o	o	o
Y	o	o	o	o	o	o	o	o	.	.	o
D ₁	+	+	-	-	+	o	o	o	o	o	o
F ₁	o	o	o	o	o	+	+	ur ₅	+	.	o
G ₁	.	+	+	-	+	+	+	ur ₅	+	+	o
H ₁	o	o	o	o	o	.	+	ur ₅	+	+	+
A ₃	+	+	+	-	+	+	+	ùr	+	+	+

096 u₄ še bad-rá-zu-dè

E	om					
F	om					
Y	om					
D ₁	om					
F ₁	om					
G ₁	om					
H ₁	om					
A ₃	+	+	+	+	+	+

097 zú giš.bad-rá- zu kuš lá-lá- bi esír ha-ra-ab-sub₆-sub₆

E	+	+	+	-	-	+	+	+	+	o	o	esír	+	+	o	+	o
F	o	o	+	rá	-	+	+	+	+	-	+	esír	+	+	.	o	o
Y	o	o	o	o	o	.	+	+	+	-	.	o	+	+	+	+	+
C ₁	.	.	o	o	o	o	o	o	o	o	o	.	o	o	o	o	o
D ₁	+	+	+	o	o	o	o	o	o	o	o	o	o	o	o	o	o
F ₁	o	o	o	rá	-	+	+	+	+	o	o	.	.	+	-	+	o
G ₁	+	+	+	rá	ba	+	+	+	+	-	+	esir	+	.	o	o	o
H ₁	.	.	+	rá	ba	+	+	+	+	-	+	esir	+	+	+	+	+
A ₂	+	+	+	rá	-	+	+	+	+	-	+	esir	+	+	+	+	+
A ₃	+	+	+	da	a	+	+	+	+	ab	+	esír	+	+	-	+	+

098 gud dūr-dūr-ru-da -zu-dè

E	+	+	+	+	da	+	+
F	o	o	+	+	na	+	+
Y	o	o	o	o	d]a	+	+
C ₁	+	+	+	+	o	o	o
D ₁	+	+	+	.	o	o	o
F ₁	o	+	.	+	na	+	.
G ₁	+	+	+	+	da	+	+
H ₁	+	+	o	+	da	+	+
I ₁	o	o	o	o	d[a	+	o
A ₂	+	+	+	+	da	+	+
A ₃	+	+	-	+	da	+	+

* in A2 with line 99.

9. Textual Matrices

099	lú še	bad-rá-	zu	usu	hé-en-dè-gub
E	+	+	-	+	rá - + - . - + en + + -
F	.	+	-	+	rá a + - + - + - + + -
Y	o	o	o	o	o - + - + - + en x + -
C ₁	+	+	-	+	rá - . o o o o o o o o o
D ₁	+	+	-	+	rá o o o o o o o o o o o
F ₁	.	+	-	+	rá - + n[e + - + en . o o
G ₁	+	+	-	+	rá - + - + - + - + + + -
H ₁	+	+	-	+	rá - + - + - + - + + + -
I ₁	+	+	-	+	rá - + - + - + - + + + o
A ₂	+	+	giš	bad du8	- + - + - + ri - + bu-uš
A ₃	o	+	-	+	rá - + ne + ni-a + - - + bu-uš

100	u ₄ še ki	ba-e-ni-	ús-	sa
E	+	+	+	ba + o o o
F	+	+	+	ba + ne ús sa
Y	o	o	o	o o o ús sa
C ₁	+	+	-	ba + ni o o
D ₁	+	+	-	ba + n[i o o
F ₁	+	+	-	ba + ni ús o
G ₁	+	+	-	ba + ni ús sa
H ₁	+	+	-	ba + ni ús sa
I ₁	o	o	o	o . ni ús o
A ₂	+	+	-	bi - in x a
A ₃	om			

101	sizkúr	še	nu	nir-ra	dug ₄ -ga-ab		
E	+	+	+	.	.	+	+
F	+	-	+	+	+	+	+
Y	o	o	o	o	.	+	+
C ₁	+	+	+	+	o	o	o
D ₁	+	+	+	+	o	o	o
F ₁	+	+	o	o	o	o	o
G ₁	+	+	+	+	+	+	+
H ₁	+	+	+	+	+	+	+
I ₁	o	o	o	.	+	+	.
A ₂	+	+	+	+	+	+	+
A ₃	+	+	+	+	+	+	+

102	u ₄	še	al-lá-e			-en-na-zu		
E	+	+	+	-	è	-	-	+
F	o	+	+	+	+	-	+	+
Y	o	o	o	o	o	o	o	+
C ₁	+	+	+	+	e	o	o	o
D ₁	+	+	+	+	o	o	o	o
F ₁	+	+	.	o	o	o	o	o
G ₁	+	+	+	+	e	-	-	+
H ₁	+	+	+	+	e	-	-	+
I ₁	o	o	o	o	o	o	o	+
A ₂	+	+	+	+	e ₁₁	dè	+	+
A ₃	+	+	+	-	è	-	+	+

102a lú še al-lá-e dè-en-na-zu
 * only in A2.

103	lú	še	ki-ta	a1-		gub-bu-a	lú	geštú-ga		gub-ba-ab				
E	+	+	+	+	-	+	+	+	+	+	bu ab			
F	.	+	-	+	-	+	+	+	+	-	ba .			
Y	o	o	o	o	o	-	.	+	+	o	o	+	ba DU	
C ₁	+	+	+	+	.	-	o	o	o	+	+	o	o	o
D ₁	+	+	+	+	+	-	o	o	o	o	o	o	o	o
F ₁	+	+	+	.	o	o	o	o	+	+	o	o	o	o
G ₁	+	+	+	+	+	-	+	+	+	+	+	-	+	ba +
H ₁	+	+	+	+	+	-	+	+	+	+	+	ga	+	ba +
I ₁	o	o	o	+	.	-	o	.	+	+	o	o	o	o
A ₂	+	+	+	+	+	lá-e-na	+	-	-	+	+	tuku	+	ba +
A ₃	+	+	+	+	+	-	-	+	+	+	+	ka	.	ba +

104	Tú	še	DU-a	2-àm	ha-ra-gub-bu-uš
E	+	+	+	àm	2 + + + + -
F	.	+	+	àm	2 - + + + +
Y	o	o	o	o	o o o o o o .
C ₁	+	+	+	a	2 . o o o o o o
D ₁	+	+	+	a	2 . o o o o o o
F ₁	+	+	+	a	2 + o o o o o o
G ₁	o	o	.	a	2 + + + + + +
H ₁	.	+	+	a	2 + + + + + +
I ₁	o	o	o	a	2 + o . o o o o
A ₂	+	+	+	a	3 + + + + + +
A ₃	+	+	+	a	2 + + + + . .

105	u ₄	še	ba-e-	nir-ra		gidru-šè	ná-a	-ab	
E	+	+	+	+	ni	+	+	-	ab
F	o	o	o	o	o	o	o	o	o
C ₁	+	+	+	+	-	+	+	-	-
D ₁	+	+	+	+	-	.	o	o	o
F ₁	+	+	+	+	-	+	+	-	-
G ₁	o	o	o	o	o	.	-	-	+
H ₁	o	o	+	+	-	+	+	-	+
I ₁	o	o	o	+	+	+	-	-	+
A ₂	-	+	-	-	-	+	+	KA	giš
A ₃	+	+	+	+	-	+	+	+	+

226

9. Textual Matrices

107 u₄ sag-a-gin₇ še búr-ra-ab

E	.	.	+	+	+	+	+
F	o	o	o	o	.	+	.
X	o	o	o	o	o	.	+
C ₁	tr						
D ₁	.	.	o	o	o	o	o
F ₁	+	+	+	+	+	+	o
G ₁	o	o	o	o	+	+	+
H ₁	o	o	o	.	+	+	.
A ₂	+	+	+	+	+	+	+
A ₃	+	+	+	+	+	+	+

107a še búr-ra a-ra-ab-DU ʽxʼ-e

* in A₃ only

108 na-de₅-ga d.nin-urta dumu d.en-líl-lá-ke₄

E	.	.	-	+	+	+	dumu	+	+	+	+	+
F	o	o	o	o	o	.	dumu	+	+	+	+	+
X	o	o	o	o	o	o	dumu	+	+	+	+	+
F ₁	+	+	+	+	+	o	dumu	+	+	+	o	o
G ₁	o	o	+	+	-	+	dumu	+	+	+	+	+
H ₁	.	.	-	+	+	+	dumu	+	+	+	+	+
A ₂	+	+	-	+	+	+	engar	+	+	+	+	-
A ₃	.	.	-	.	.	.	dumu	+	+	+	+	-

109 d.nin-urta engar zi d.en-líl-lá / zà-mí-zu dùg-ga-àm

E	+	+	+	engar	zi	+	+	+	+	+	+	-	+	+	+
F	o	o	o	engar	zi	+	+	+	+	o	o	+	+	+	-
X	om														
B ₁	o	o	o	o	o	o	o	o	o	.	.	.	.	.	.
F ₁	+	+	+	engar	zi	+	+	o	o	+	+	+	+	+	.
G ₁	om														
H ₁	om														
A ₂	+	+	+	en dumu	-	+	+	+	+	+	+	+	+	+	+
A ₃	+	+	+	engar	zi	+	+	+	+	+	+	+	+	+	-

References

References to Sumerian literary compositions are given separately at the end.

- Ali, F. A.
1964 *Sumerian Letters: Two Collections from Old Babylonian Schools.*
Ph.D. Diss. University of Pennsylvania. University Microfilms 64-10,343.
- Alster, B.
1972 *Dumuzi's Dream: Aspects of Oral Poetry in a Sumerian Myth.* Mesopotamia 1.
Copenhagen: Akademisk Forlag.
- Archi, A.
1980 Ancora su Ebla e la Bibbia. *SEb* 2:17-40.
1984 Allevamento e distribuzione del bestiame ad Ebla. *SEb* 7:45-81.
- al-Barazi, N. K.
1961 *The Geography of Agriculture in Irrigated Areas of the Middle Euphrates Valley.*
Baghdad: al-Aani.
- Bauer, J.
1972 *Altsumerische Wirtschaftstexte aus Lagasch.* Studia Pohl 9. Rome: Pontificio
Istituto Biblico.
1973 *Altsumerische Beiträge* (4-6). *WO* 7:9-15.
- Billiard, R.
1928 *L'agriculture de l'antiquité d'après les Géorgiques de Virgile.* Paris: De Boccard.
- Black, J. A.
1984 *Sumerian Grammar in Babylonian Theory.* Studia Pohl: Series Maior 12. Rome:
Pontificio Istituto Biblico.
- Briggs, D. E.
1978 *Barley.* London: Chapman & Hall.
- Burrows, E.
1927 The Inscriptions [Ur Excavations 1926-27]. *AJ* 7:404-406.
- Butz, K.
1973-74 Konzentration wirtschaftlicher Macht im Königreich Larsa. *WZKM* 65-66:1-58.
1981 Zur Terminologie der Viehwirtschaft in den Texten aus Ebla. In Cagni, L. ed.
1981:321-353.
1983 Landwirtschaft. *RIA* 6:470-486.
- Cagni, L., ed.
1981 *La Lingua di Ebla.* Series minor 14. Naples: Istituto Universitario Orientale.
1984 *Il Bilinguismo a Ebla.* Series Minor 24. Naples: Istituto Universitario Orientale.
- Carroué, F.
1986 Le "Cours-d'Eau-Allant-à-NINA^{ki}." *ASJ* 8:13-57.

The Farmer's Instructions

- Cavigneaux, A.
 1989 Le nom akkadien du grain. *NABU* no. 52.
 1991 Nouveaux fragments des Géorgiques. *AuOr* 9:37-46.
 1992 LUL-bi = lib-bi. *NABU* no.109.
- Cavigneaux, A. and F. al-Rawi
 1993 New Sumerian Literary Texts from Tell Haddad (Ancient Meturan): a First Survey. *Iraq* 45:91-105.
- Charpin, D.
 1986 *Le clergé d'Ur au siècle d'Hammurabi*. Genève: Droz.
- Chiera, E.
 1923-24 Notes on Langdon's "Sumerian and Akkadian Religious and Historical Texts." *AJSL* 40:259-268.
- Civil, M.
 1960 Préscriptions médicales sumériennes. *RA* 54 57-72.
 1965 *Le débat sumérien de la Houe et l'Araire*. Ph.D. Diss. Paris [mimeographed].
 1966 Notes on Sumerian Lexicography I. *JCS* 20:119-124.
 1967 Note lexicographique sur SUHUR/KA. *RA* 61:63-68.
 1968 Išme-Dagan's and Enlil's Chariot. *JAOS* 88:3-14.
 1969 The Sumerian Flood Story. In Lambert, W. G. and A. R. Millard *Atra-Hasis: the Babylonian Story of the Flood* 138-145, 167-172. Oxford: Clarendon.
 1973 The Sumerian Writing System: Some Problems. *Or* 42:21-34.
 1974-77 Enlil and Namzitarra. *Afo* 25:65-71.
 1975 Lexicography. *AS* 20:123-157.
 1976a The Song of the Plowing Oxen. *AOAT* 25:83-95.
 1976b Enlil, the Merchant: Notes on CT 15 10. *JCS* 28:72-81.
 1980 Les limites de l'information textuelle. In Barrelet, M-T. ed. *L'archéologie de l'Iraq du début de l'époque néolithique à 333 avant notre ère*. Colloques Internationaux du CNRS 580:225-232.
 1982 Studies in Early Dynastic Lexicography I. *OrAn* 21:1-26.
 1984 Bilingualism in Logographically Written Languages: Sumerian in Ebla. In Cagni, L. ed. 1984:75-97.
 1985 Sur les "livres d'écolier" à l'époque paléo-babylonienne. In Durand, J.-M. and J.-R. Kupper eds. *Miscellanea Babylonica: Mélanges offert à Maurice Birot* 67-78.
 1987 *The Farmer's Instructions: Preliminary Edition for the Use of the Sumerian Agriculture Group*. Chicago: Oriental Institute [multicopied].
 1988 NE = šar_x. *NABU* no.42.
 1989 The Texts from Meskene-Emar. *AuOr* 7:5-25.
 in press From the Epistolary of the Edubba.
 forthcoming *Sumerian Debates and Dialogues*.
- Cohen, M. E.
 1993 *Cultic Calendars of the Ancient Near East*. Bethesda MD: CDL.
- Cole, S. W.
 1994 Marsh Formation in the Borsippa Region and the Course of the Lower Euphrates. *JNES* 53:81-109.
- Cooper, J.S.
 1972 gir-KIN "to stamp out, trample." *RA* 66 81-83.
 1983 *The Curse of Agade*. Baltimore, MD: John Hopkins University.

References

- Dalman, G.
1932-33 *Arbeit und Sitte in Palästina* vols. 2-3. Schriften des deutschen Palästina-Instituts 5-6. Gütersloh: Bertelsmann. [1987 reprint, Hildesheim: Olms].
- Dearing, V. A.
1974 *Principles and Practice of Textual Analysis*. Berkeley: University of California.
- Deimel, A.
1909 Studien zu CT I, III, V, VII, IX und X. *ZA* 23:107-144.
1922 Die Vermessung der Felder bei den Sumerern um 3000 v.Chr. *Or* 4:1-43.
1923 Die Bestellung der Tempeläcker in Alt-sumer. *Or* 22:1-34.
- Deshayes, J.
1960 *Les outils de bronze de l'Indus au Danube*. 2 vols. Institut Français d'Archéologie de Beyrouth, Bibliothèque Archéologique et Historique 71. Paris: Geuthner.
- van Dijk, J.
1983 LUGAL UD ME-LÁM-bi NIR-GÁL. 2 vols. Leiden: Brill.
- Durand, J.-M.
1983 Relectures d'ARMT VIII, II: ARMT VIII, 89 et le travail du métal à Mari. *MARI* 2:123-139.
- Edzard, D. O.
1957 *Die "Zweite Zwischenzeit" Babylonien*. Wiesbaden: Harrassowitz.
1987 Literatur. *RIA* 7:35-48.
- Edzard, D. O. and C. Wilcke
1976 Die Hendersanga-Hymne. *AOAT* 25:139-176.
- Ellis, M. de J.
1976 *Agriculture and the State in Ancient Mesopotamia*. Occasional Publications of the Babylonian Fund 1. Philadelphia: The University Museum.
- Fahd, T.
1977 Matériaux pour l'histoire de l'agriculture en Iraq: *al-Filāḥa an-nabaṭiyya*. *Handbuch der Orientalistik* I, VI/6 276-377. Leiden: Brill.
- Falkenstein, A.
1931 *Die Haupttypen der sumerischen Beschwörung*. LSS 1 n.f. 1. Leipzig: Hinrich'sche Buchhandlung.
1957-58 Zur Grammatik der altsumerischen Sprache. *AfO* 18:89-96.
- Fish, T.
1938 The Sumerian City Nippur in the Period of the Third Dynasty of Ur. *Iraq* 5:157-179.
- Foster, B.
1982a *Umma in the Sargonic Period*. Memoirs of the Connecticut Academy of Arts & Sciences 20. Hamden CT: Archon Books.
1982b *Administration and Use of Institutional Land in Sargonic Sumer*. Mesopotamia 9. Copenhagen: Akademisk Forlag.
- Fronzaroli, P.
1979 Problemi di fonetica eblaita I. *SEb* 1:65-89.
- Gelb, I.J.
1973 Prisoners of War in Early Mesopotamia *JNES* 32:70-98.

The Farmer's Instructions

- de Genouillac, H.
1924 Notes sur les textes économiques d'Oumma. *Babyloniaca* 8:41-55.
- Goetze, A.
1935-36 The Meaning of Sumerian *kislah* and its Akkadian Equivalents. *AJSL* 52:143-159.
1962 Two Ur-Dynasty Tablets Dealing with Labor. *JCS* 16:13-16.
1963 Šakkanakkus of the Ur III Empire. *JCS* 17:1-31.
- Gordon, E. I.
1960 A New Look at the Wisdom of Sumer and Akkad. *BiOr* 17:121-152.
- Gragg, G. B.
1972 Observations on Grammatical Variation in Sumerian. *JAOS* 92:204-213.
1973a *Sumerian Dimensional Infixes*. AOAT 5. Neukirchen-Vluyn: Neukirchner Verlag.
1973b A Class of "When" Clauses in Sumerian. *JNES* 32:124-34.
- Greenfield, J. C.
1967 Some Aspects of Treaty Terminology in the Bible. *4th World Congress of Jewish Studies I* 117-119. Jerusalem.
- Grégoire, J.-P.
1970 *Archives administratives sumériennes*. Paris: Geuthner.
1981 Remarques sur quelques noms de fonction et sur l'organisation administrative dans les archives d'Ebla. In Cagni, L. ed. 1981 379-99.
- Guest, E.
1933 *Notes on Plants and Plant Products with their Colloquial Names in Iraq*. Bulletin 27. Baghdad: Department of Agriculture, Iraq.
1966 *Flora of Iraq I: Introduction*. Baghdad: Ministry of Agriculture.
- Hallo, W. W.
1990 The Limits of Skepticism. *JAOS* 110:187-99.
- Hallo, W.W. and J. van Dijk
1968 *The Exaltation of Inanna*. YNER 3. New Haven: Yale University.
- Hansen, H.-O.
1969 Experimental Ploughing with a Døstrup Ard Replica. *TT* 1/2:67-92.
- Haudricourt, A. G. and M.J.-B. Delamarre
1955 *L'homme et la charrue à travers le monde*. Paris: Gallimard.
- Heimpel, W.
1981 The Nanshe Hymn. *JCS* 33:65-139.
- Hillen, C.
1953 A Note on Two Shaft-hole Axes. *BiOr* 10:211-15..
- Hruška, B.
1985 Der Umbruchpflug in den archaischen und altsumerischen Texten. *ArOr* 35:46-65.
- Jacobsen, Th.
1939 *Cuneiform Texts in the National Museum Copenhagen*. Leiden: Brill.
1957-58 *Salinity and Irrigation Culture in Antiquity: Diyala Basin*. Archeological Projects: Report on Essential Results I. [published 1982 as *BiMes* 14].
1959 An Ancient Mesopotamian Trial for Homicide. *Analecta Biblica et Orientalia* 12:130-50.

References

- al-Khashab, W. H.
1958 *The Water Budget of the Tigris and Euphrates Basin*. Department of Geography, Research Paper 54. Chicago: University of Chicago.
- Klein, J.
1981 *Three Šulgi Hymns*. Ramat-Gan: Bar-Ilan University.
- Kramer, S. N. K.
1940 *Lamentation over the Destruction of Ur*. AS 12. Chicago: University of Chicago.
1956 *From the Tablets of Sumer*. Indian Hills CO: Falcon's Wing Press.
1963 *The Sumerians*. Chicago: University of Chicago.
- Kraus, F. R.
1955 Review of Figulla, H. H. and W. J. Martin, UET 5. *OLZ* 50:516-524.
1970 *Sumerer und Akkader, ein Problem der altnesopotamischen Geschichte*. MKNW 33,8. Amsterdam: North-Holland.
1975 Akkadische Wörter und Ausdrücke, IX: *habātum*. *RA* 69:31-40.
- Krebernik, M.
1984 *Die Beschwörungen aus Fara und Ebla*. Texte und Studien zur Orientalistik 2. Hildesheim: Olms.
- Krecher, J.
1983 Eine unorthographische sumerische Wortliste aus Ebla. *OrAn* 22:179-189.
- Krispijn, Th. J. H.
1981-82 Die Identifikation zweier lexikalischer Texte aus Ebla: *MEE* III Nr. 62 und 63. *JEOL* 27:47-59.
- Kutscher, R.
1973 *Imittu* - Postponed and Replaced: A New Document. *BiOr* 30:363-366.
- van Laere, R.
1980 Techniques hydrauliques en Mésopotamie ancienne. *OLP* 11:11-53.
- Laessøe, J.
1953 Reflexions on Modern and Ancient Oriental Water Works. *JCS* 7:5-26.
- Lafont, B.
1980 Un nouveau texte d'Ur III sur l'irrigation. *RA* 74:29-29-42.
- Lambert, M.
1954 Le signe *bur₅* et sa signification "moineau". *RA* 48:29-32.
1961 Le préfixe sumérien HÉ-, indice de l'inéluctable. *RA* 55:35-40.
1979 Grand document juridique de Nippur. *RA* 73:1-22.
- Lambert, W. G.
1971 Critical Notes on Recent Publications. *Or* 40:90-98.
- Landsberger, B.
1926 Neue Kontrakte aus Babylonien. *OLZ* 29:761-765.
1937 Kurzer Kommentar zur Serie *ana ittišu*. *MSL* 1:109-252.
- Landsberger, B., and J. Bauer
1927 Zu neuveröffentlichten Geschichtsquellen der Zeit von Asarhaddon bis Nabonid. *ZA* 37:61-98.

The Farmer's Instructions

- Langdon, J.
1986 Ox-shoeing on English Demesnes: 1200-1500. *TT* 5/3:173-79.
- Leonard, W. H. and J. H. Martin
1963 *Cereal Crops*. London: Macmillan.
- van Lerberghe, K.
1982 A propos d'un outil agricole, la habuda. *OLP* 13:279-85.
- Lerche, G. and A. Steensberg
1983 Tools and Tillage in Iran. *TT* 4/4:217-48.
- Limet, H.
1960 *Le travail du métal au pays de Sumer au temps de la IIIe dynastie d'Ur*. Paris: Les Belles Lettres.
- Liverani, M.
1990 The shape of Neo-Sumerian fields. *BSA* 5/2:147-86.
- Livingstone, A.
1980 A Fragment of a Work Song. *ZA* 70:55-57.
- Maeda, T.
1979 On the Agricultural Festivals in Sumer. *ASJ* 1:19-33.
- Maekawa, K.
1981 The Agricultural Texts of Ur III Lagash of the British Museum (I). *ASJ* 3:37-61.
1982 The Agricultural Texts of Ur III Lagash of the British Museum (II). *ASJ* 4:85-127.
1984 Cereal Cultivation in the Ur III Period. *BSA* 1:73-96.
1986 The Agricultural Texts of Ur III Lagash of the British Museum (III). *ASJ* 8:85-120.
1986a The Agricultural Texts of Ur III Lagash of the British Museum (IV). *Zinbun* 21:91-157.
1987 The Management of Domain Land in Ur III Umma: A Study of BM 110116. *Zinbun* 22:25-82.
1987a The Agricultural Texts of Ur III Lagash of the British Museum (V). *ASJ* 9:89-129.
1989 The Agricultural Texts of Ur III Lagash of the British Museum (VI). *ASJ* 11:113-44.
1990 Cultivation methods in the Ur III period. *BSA* 5/2:115-45.
1991 The Agricultural Texts of Ur III Lagash of the British Museum (VII). *ASJ* 13:195-235.
1992 The Agricultural Texts of Ur III Lagash of the British Museum (VIII). *ASJ* 14:173-243.
1993 The Agricultural Texts of Ur III Lagash of the British Museum (IX). *ASJ* 15:107-29.
- de Mecquenem, R. and G. Dossin
1938 La marre de Nabû. *RA* 35:129-135.
- McCown, D. E, et al.
1967 *Nippur I: Temple of Enlil, Scribal Quarter, and Soundings*. Oriental Institute Publications 78. Chicago: University of Chicago.
- Michalowski, P.
1989 *The Lamentation over the Destruction of Sumer and Ur*. Winona Lake IN: Eisenbrauns.
- Nissen, H.
1975 *Geographie*. *AS* 20:9-40.
- Nougayrol, J.
1949 Conjuraton ancienne contre Samama. *ArOr* 17/2:213-226.

References

- Oberhuber, K.
1958-60 *Sumerische und Akkadische Keilschriftdenkmäler des archäologischen Museums zu Florenz*. Innsbrucker Beiträge zur Kulturwissenschaft, Sonderheft 8. Innsbruck: Innsbrucker Gesellschaft zur Pflege der Geisteswissenschaften.
- Oppenheim, A. L.
1948 *Catalogue of the Cuneiform Tablets of the Wilberforce Eames Babylonian Collection*. AOS 32.
- Pettinato, G.
1967 *Untersuchungen zur neusumerischen Landwirtschaft*. 2 vols. Ricerche 3. Naples: Istituto Orientale.
1969 *Texte zur Verwaltung in der Ur-III Zeit: "die runden Tafeln."* AnOr 45. Rome: Pontificio Istituto Biblico.
1982 *Testi lessicali bilingui della Biblioteca L. 2769*. MEE 3. Naples: Istituto Universitario Orientale.
- Pettinato, G. and H. Waetzoldt
1975 *Saatgut und Furchenabstand beim Getreideanbau*. StOr 46:259-290.
- Pinches, T. G.
1908 *The Amherst Tablets, Part I: Texts of the Period extending to and including the Reign of Bûr-Sîn*. London: Quaritch.
- Poebel, A.
1931 *The Sumerian Prefix Forms E- and I- in the Time of the Earlier Princes of Lagaš*. AS 2.
- Powell, M. A.
1972 *Sumerian Area Measures and the Alleged Decimal Substratum*. ZA 62:165-221.
1984a *Sumerian Cereal Crops*. BSA 1:48-72.
1984b *Late Babylonian Surface Mensuration*. AfO 31:32-66.
1991 *Epistemology and Sumerian Agriculture: The Strange Case of Sesame and Linseed*. AnOr 9:155-164.
- Poyck, A. P. G.
1962 *Farm Studies in Iraq*. Mededelingen van de Landbouwhogeschool te Wageningen 62. Wageningen: Veenman & Zonen.
- Rasmussen, H.
1969 *Grain Harvest and Threshing in Calabria*. TT 1/2:93-104.
- Rasmusson, D. C., ed.
1985 *Barley*. Agronomy 26. Madison WI.
- Reisner, G. A.
1901 *Tempelurkunden aus Telloh*. Mitteilungen aus den orientalischen Sammlungen 16. Berlin: Spemann.
- Renger, J.
1990 *Rivers, Watercourses and Irrigation Ditches*. BSA 5/2:31-46.
- Rodgers, R. H.
1980 *Hail, Frost, and Pests in the Vineyard: Anatolius of Berytus as a Source for the Nabataean Agriculture*. JAOS 100:1-11.

The Farmer's Instructions

- Rosengarten, Y.
1960 *Le concept sumérien de consommation dans la vie économique et religieuse.* Paris: De Boccard.
1967 *Répertoire commenté des signes présargoniques sumériens de Lagaš.* Paris: De Boccard.
- Roth, M.
1980 The Scholastic Exercise "Laws about Rented Oxen." *JCS* 32:127-146.
- Rouault, O.
1977 L'approvisionnement et la circulation de la laine à Mari. *Iraq* 39:147-153.
- Rowton, M. B.
1967 Watercourses and Water Rights in the Official Correspondance from Larsa and Isin. *JCS* 21:267-274.
- Russel, J. C.
1957 *Tillage Practices in Iraq.* Abu Ghraib: Iraq College of Agriculture [mimeographed].
- Sallaberger, W.
1993 *Der kultische Kalender der Ur III-Zeit.* Untersuchungen zur Assyriologie und Vorderasiatische Archäologie 7, 2 vols. Berlin: De Gruyter.
- Salonen, A.
1966 *Die Hausgeräte der alten Mesopotamier. Teil II: Gefässe.* *Annales Academiae Scientiarum Fennicae* B 144
1968 *Agricultura Mesopotamica.* *Annales Academiae Scientiarum Fennicae* B 149. Helsinki.
- Sauren, H.
1966 *Topographie der Provinz Umma nach den Urkunden der Zeit der III. Dynastie von Ur.* Ph.D. Diss. Heidelberg: Ruprecht-Karl-Universität.
1969 *Wirtschaftsurkunden aus der Zeit der III. Dynastie von Ur im Besitz des Musée d'Art et d'Histoire in Genf.* Ricerche 6. Naples: Istituto Orientale.
- Scheil, V.
1913 De l'exploitation des dattiers dans l'ancienne Babylonie. *RA* 10:1-9.
- Scholtz, R.
1934 Die Struktur der sumerischen engeren Verbalpräfixe. *MVAG* 39,2.
- Selz, G. J.
1989 *Altsumerische Verwaltungstexte aus Lagaš Teil 1: die altsumerischen Wirtschafts-urkunden der Eremitage zu Leningrad.* *FAOS* 15/1.
- Sigrist, M.
1979 Tur: diminuer le débit de quelqu'un. *RA* 73:96.
1981 Le travail des cuirs et peaux à Umma sous la dynastie d'Ur III. *JCS* 33:141-190.
1983 *Textes économiques néo-sumériens de l'université de Syracuse.* *Mémoire* 29. Paris: Recherches sur les civilisations.
- Sjöberg, A. W..
1968 Ein syllabisch geschriebener Urnammu-Text. *Or Suec* 10:3-12.
1975 In-nin ša-gur₄-ra: A Hymn to the Goddess Inanna by the en-Priestess Enheduanna. *ZA* 65:161-253.
- Sneath, P. H. A. and R. R. Sokal
1973 *Numerical Taxonomy.* San Francisco: Freeman & Co.

References

- von Soden, W.
1966 Aramäische Wörter in neu-assyrischen und neu- und spätbabylonischen Texten. Ein Vorbericht. I (agâ-*mūš). *Or* 35:1-20.
- Stamm, J. J.
1968 *Die akkadische Namengebung*. Darmstadt: Wissenschaftliche Buchgesellschaft.
- Steensberg, A.
1943 Ancient Harvest Implements. Nationalmuseets Skiffer: Arkeologisk-Historisk Roekke I. Copenhagen.
1957-58 Parallel Ploughing with Alternately Sloping and Upright Ard in Columella. *Folk-Liv* 21-22:157-162.
1988 "Ox in boots": An expression in the Sumerian Farmer's Instruction Elucidated by Later Evidence. In Göttisch, S. and K. D. Sievers, eds. *Forschungsfeld Museum: Festschrift für A. Lühning zum 65. Geburtstag*. Kiel: Mühlaus.
1989 *Hard Grains, Irrigation, Numerals and Script in the Rise of Civilisations*. Copenhagen.
- Steinkeller, P.
1981 The Renting of Fields in Early Mesopotamia and the Development of the Concept of "Interest" in Sumerian. *JESHO* 24:113-45.
1982 On the Reading and Meaning of igi-kár and gúrum (IGI.GAR). *ASJ* 4:149-51.
1985 Three Assyriological Notes. *ASJ* 7:195-196.
1988 Notes on the Irrigation System in Third Millennium Southern Babylonia. *BSA* 4:73-92.
1990 Threshing Implements in Ancient Mesopotamia: Cuneiform Sources. *Iraq* 52:19-23.
- Stol, M.
1988 Old Babylonian Fields. *BSA* 4/1:173-88.
- Stolper, M. W.
1985 *Entrepreneurs and Empire*. Istanbul: Nederlands Historisch-Archaeologisch Instituut.
- Stone, E. C.
1987 *Nippur Neighborhoods*. Studies in Ancient Oriental Civilizations 44. Chicago: University of Chicago
- Strommenger, E. and M. Hirmer
1962 *Fünf Jahrtausende Mesopotamien*. München: Hirmer.
- Thomsen, M.-L.
1984 *The Sumerian Language*. Mesopotamia 10. Copenhagen: Akademisk Forlag.
- Thureau-Dangin, F.
1909 L'U, le QA et la mine, leurs mesure et leur rapport. *JA* 1909:79-111.
1927 Marru. *RA* 24:147.
1932 Notes Assyriologiques. *RA* 29:21-28.
- Veenhof, K.
1973 An Old Babylonian Deed of Purchase of Land. In Beek. M. A. et al., eds. *Symbolae Biblicae et Mesopotamicae F.M.T. de Liagre Böhl Dedicatae* 359-79. Leiden: Brill.
1985 SAG.ÍLLA = *saggilû*, "difference assessed" on Measuring and Accounting in some Old Babylonian Texts. In Durand, J.-M., and J.-R. Kupper, eds. *Miscellanea Babylonica: Mélanges offerts à Maurice Birot* 285-306.
- Waetzoldt, H.
1972 *Untersuchungen zur neusumerischen Textilindustrie*. Rome: Istituto per l'Oriente.
1976 Miscellanea Sumerica V: Kollationen zu A. Pohl, Rechts- und Verwaltungsurkunden der III. Dynastie von Ur. *OrAn* 15:317-328.

The Farmer's Instructions

- 1978 Zu den Feldpachtverträgen aus Nippur. *WO* 9:201-05.
 1987 Knoblauch und Zwiebeln nach den Texten des 3. Jt. *BSA* 3:23-56.
 1990 Zu den Bewässerungseinrichtungen in der Provinz Umma. *BSA* 5:1-29.
- Walker, W. R. and G. V. Skogerboe
 1987 *Surface Irrigation: Theory and Practice*. Englewood Cliffs NJ: Prentice-Hall.
- White, K. D.
 1967 *Agricultural Implements of the Roman World*. Cambridge: University of Cambridge.
 1970 *Roman Farming*. Ithaca NY: Cornell University.
- Whiting, R.
 1987 *Old Babylonian Letters from Tell Asmar*. AS 22.
- Wirth, E.
 1962 *Agrargeographie des Irak*. Hamburger Geographische Studien 13. Hamburg.
- Wulf, H. E.
 1966 *The Traditional Crafts of Persia*. Cambridge MA: M.I.T.
- Yamamoto, Sh.
 1980 The "Agricultural Year." *ASJ* 2:169-87.
- Yoshikawa, M.
 1989 Looking for Tummal. *ASJ* 11:285-291.
- Zettler, R. L.
 1989 Field Plans from the Ur III Temple of Inanna at Nippur. *ASJ* 11:305-13.
- Zhi, Y.
 1989 *Sargonic Inscriptions from Adab*. Periodic Publications 1. Changchun: Institut for the History of Ancient Civilizations.

Cuneiform Literary Texts

Sumerian literary texts are quoted according to the following sources or editions (HT = editions of the hypertext corpus of the Oriental Institute).

Curse of Agade	Cooper 1983
Dialogues	HT/Civil, forthcoming
Dimmaniusani	<i>TMH NF</i> 3 42 + <i>ISCT</i> 1 65 vii 24 ff. and dupl.
Dumuzi's Dream	Alster 1972.
Edubba B	Sjöberg <i>JCS</i> 25 105ff.
Edubba C	HT/Civil, forthcoming
Edubba D	Civil 1985 (partial edition)
Edubba R	HT/Civil, forthcoming
Enki and Ninhursag	Attinger <i>ZA</i> 74 1ff.
Enki and the World Order	Benito Ph.D. diss. 1969 (Univ. Microfilms 70-16-124)
Enlil A	Reisman Ph.D. Diss. 1969 (Univ. Microfilm 70-16-201).
Fields of Ninurta	HT
Gilgameš and Enkidu	Shaffer Ph.D. Diss. 1963 (Univ. Microfilm 63-7085)
Gilgameš and Huwawa	Edzard <i>ZA</i> 81 165ff.
Gilgameš and the Bull	HT

References

- Gudea cyl.
 Hendursagga Hymn
 Hoe and Plow
 Home of the Fish
 Inanna and Ebih
 Inanna's Descent
 Inninšagurra
 Keš Hymn
 Lahar and Ašnan
 Lament over Sumer and Ur
 Letter of Lugal-nisag
 Lipit-eštar and the Plow
 Lugal
 Lugalbanda 1
 Lullaby
 Nanše Hymn
 Nidaba Hymn
 Nungal
 Proverb 2
 Proverb 3
 Silver and Copper
 Song of the Hoe
 Šulgi A
 Šulgi B
 Šulgi C
 Šulgi G
 Šulgi H
 Šulgi R
 Temple Hymns
 Tree and Reed
 Two Elegies
 Ur Lament
 Ur-Namma A
 Uruk Lament
 Winter and Summer
- TCL 8
 Edzard and Wilcke 1976
 HT/Civil, forthcoming
 Civil *Iraq* 23 154ff.
 HT
 Sladek Ph.D. Diss. 1974
 Sjöberg ZA 65 161ff.
 TCS 3 157ff.
 HT/Civil, forthcoming
 Michalowski 1989
 Civil, in press
 Civil, forthcoming
 van Dijk 1983
 HT
 Kramer *Studi Volterra* 6 191ff.
 Heimpel JCS 33 65ff.
 Reisman Ph.D. Diss. 1969 (Univ. Microfilms 70-16-120)
 Sjöberg AfO 24 19ff.
 Gordon *Sumerian Proverbs* 151ff.
 Falkowitz Ph.D. Diss. 1980 (Univ. Microfilms 8018543)
 HT/Civil, forthcoming
 ms. G. Farber
 Klein 1981
 ms. G. Haayer
 Castellino *Studi Semitici* 42 247ff.
 CT 36 26f.
 BE 31 4
 Klein *Fs. Artzi* 65ff.
 Sjöberg TCS 3
 HT/Civil, forthcoming
 Kramer *Two Elegies*
 Kramer 1940
 HT
 Green JAOS 104 253ff.
 HT/Civil, forthcoming

Index of Words in the Farmer's Instructions

- a, 4, 5, 68
a—dé, 7
a—dug₄, 68, 69, 70, 71, 72
a—šà, 2, 4, 6, 8, 12, 13, 22, 30, 37, 39, 41, 48
a—šà—ak, 30
a—tur—ra, 52
á, 39, 45
á—áš, 22
á—gi₆—ba, 106
á—kalag, 21
á—šita₄, 15
á—u₄—te—en, 106
ab—ki—iz, 59
ab—sín, 45, 46, 47, 59, 61, 62, 67
ab—sín—lu—gú, 58
ab—sín—si—sá, 55, 56, 57
ab—sín—^{giš}šibir, 55, 56
ak, 21, 31, 33, 79, 89
^{giš}al, 12, 40
al—ak, 40
al—di, 34
al—dù, 40
^{giš}al—šub, 10
an, 38
^{giš}apin, 25, 26, 30, 42, 43, 53
^{giš}apin—túg—gur, 31
^dašnan, 50

^{giš}ba—an, 73
^{gi}ba—an—dug, 21
bad—rá, 95
^{giš}bad—rá, 97
bal, 66
^{giš}bar—dil, 30, 31
^{kuš}bar—e₁₁—dè, 20
bir₅^{mušen}, 66
uruda^{da}bulug, 19
búr, 107

da, 22
dabin, 85
^{giš}dam, 44
de₅, 1, 60
di₄—di₄—lá, 82
dib, 2
dím, 28
diri, 23, 25, 67
du, 34
DU, 59, 104
dù, 27
du₆, 3
du₆—ul, 83
du₇, 72
dug, 3, 95
dùg, 109
dùg—ak, 18
dug₄, 37, 65, 87, 90, 101, 106
dumu, 1, 108
dur, 24, 54
dúr—dúr, 98
dúr—dúr—ru—na, 47

e, 3
e, *see* dug₄
e₁₁, 5, 88
^{giš}eme, 53
engar, 109
^den—líl, 108, 109
en—na, 13
en—nu—un—ak, 6
éš—gàr, 26
esír, 97

Gá—gá, *see* gar
gál, 22, 29, 57
gá—la—dag, 36
gán, 59
gar, 29, 51, 57

še^egaradin, 80
 gašam, 18
 geštú, 103
 gibil, 16
 gidru, 105
 gig, 71
 gín, 51
 uruda^agín, 19
 uruda^agín-sal, 9
 gír—zukum, 7
 giš, 27, 32
 giš-gi₄, 32
 giš úr-ra, 32
 gu—dúb, 42
 gú, 12
 gú—gíd, 47
 gú-TAG, 57
 gú-tu-lu, 57
 gu₇, 93
 gub, 45, 46, 69, 99, 103, 104
 gud, 10, 23, 24, 39, 93, 98
 gud-suhúb, 7
 gur, 29
 gur₁₀, 75, 78

har-ra-an-gur, 91
 henbúr, 63, 64

igi—gar, 49
 igi—gíd, 39
 igi—kár, 3, 22
 iku, 27, 29
 il, 4
 kušⁱim-du₅-mu, 3

KA—ak, 21
 kušⁱka-dù, 20
 ka-gu₇, 85a
 ka-sal-la, 11, 67
 gišⁱka-šú, 43
 ka-tab, 62
 gišⁱkak, 16
 gišⁱkak-sal-la, 44
 gišⁱKAK.UD, 33
 kéš, 15
 kéš-da, 76

ki—dar, 64
 ki-duru₅, 6
 ki-gar, 90
 ki-gar—dug₄, 8
 ki-še-er—tuku, 6
 ki-šúr, 33
 ki—ús, 61, 100
 giⁱkid-má-šà-ga, 69
 kin, 22, 84
 kin-ak, 35, 36
 kin—ak, 37
 kin u₄-da, 81
 kislak, 90
 ku-dun, 73
 kud-rá, 59
 kúr, 53
 kuš-lá-lá, 97

lá, 16, 17
 lag, 60
 gišⁱli-um, 45
 lillan, 70
 lú-še-bad-rá, 99
 lú-še-ki-ta, 103
 lú-še-lá, 89
 lú-še-numun gar-ra, 49

gišⁱmar-gíd-da, 92, 93
 mí-zi—dug₄, 84
 gišⁱmud, 17, 34
 mul, 38
 mur, 93

na—de₅, 1
 na-de₅-ga, 108
 ná, 83, 105
 ne-ha, 86
 gišⁱníg-gul, 33, 34
 gišⁱníg-ku₅, 53
 níg-ur₅, 95
 nigin, 12
 dⁱnin-kilim, 65
 dⁱnin-urta, 108, 109
 ninda, 46, 51
 nir, 101, 105
 numun sag-gá, 68

The Farmer's Instructions

p_{a5}, 3
peš, 32

ra, 61

Sa—gi₄, 14
sa—lá, 60
sa-ma-ná, 71
sá, 9, 77
sag, 107
sagg, 63
sag—ha-za, 20, 34
kuš^ssag-kéš, 20
sahar, 61, 62
si-il, 80
si—sá, 19, 58, 91, 92
sig, 62
silà, 73
sizkúr, 65, 87, 101, 106
su₇, 95
su₇ du₈, 94
sub₆, 97
giš^ssudun, 15
suhur, 52
sumun, 17

Šà-húl, 28
še, 47, 51, 69, 70, 73, 79, 80, 87, 100, 101, 104,
105, 107
še bad-rá, 96
še bir-ak, 72
še—de₅, 79, 82
še giš—ra, 85a
še—gur₁₀, 74
še—lá, 102
še-luh-ha an-sù-a, 71
še-numun, 52, 85
še-sumun, 52, 85
šeg₆, 13

šid, 83
šu—du₇, 38
šu-huz, 79
giš^všu-kár, 14, 19, 91a
šu-si, 50
šú, 10
šub, 43, 44, 50
urudaš^usum, 19

Tag, 11
TAK₄.IM, 76
tál, 45
téš—sì, 13
tu-lu, 24, 54
túg-sag₁₁/sig₁₈, 31
tuku, 23, 73, 85
tukum-bi, 52, 54
tur, 54

Ú-sag₁₁, 8
ú-TAG, 11
u₄-á-bi, 75
u₄ tur-ra, 81
ub-da, 12
ugu—dé/DU, 35
umbin, 10
ur₅—gúr, 74
uru₄^{ru}, 1, 41, 48, 55, 56, 59
ús, 46, 51
kuš^susàn, 16, 17, 20
usu, 30, 82, 99

Zà-mí, 109
zar, 76, 77, 83
še^szar, 86, 87
zi, 39, 109
zú, 66

Index of Sumerian Words Discussed

- @-a-ra-hi, 105
 AxBAD, 130
 a-ab-ba-hé-gál, 114
 a-ab-še-[en/in], 173
 a-da gub-ba, 126
 a—dé, 68
 a-dé-a, 133
 a—dug₄/e, 68, 88
 a-e gu₇-(a), 126
 a-è-a, 121 126 130 134
 a-ga-am, 130, 132
 a-ga-àm, 130
 a-ga-mu-um, 130
 a-ga-ša-ga, 136
 a-gal, 134
 a—gar/gá-gá, 68
 -a-gin₇, 25
 a—íl, 69
 a-KA, 57
 a-ma-ru-kam, 180
 a-mah, 134
 a-ša-dib-dib-ba, 67
 a-ša kés-rá, 106
 a-ša gud-suhúb, 143
 a-ša/iku káb-dug₄-ga, 155
 -a-ta, 25
 a-tur-ra, 84, 103
 a-tùr, 84
 a úš-a, 117, 121
 á 2-a-bi, 111
 á-gi₄-a, 106
 á-gi₆-ba, 98
 á gud hun-gá, 143
 á guruš-bi, 123
 Á.KAL, 76
 á kaskal-la, 106
 á-lá, 100
 gišá-lá, 69
 á-šita₄, 72
 á-šu-du₇, 72
 á-u₄-te-en, 98
 ab-ki-iz, 174
 ab-si-im, 173
 ab-sín, 81, 85, 86, 173
 ab-sín-gilim-ba/ma, 174
 ab-sín-lu-gú, 175
 ab-sín-si-sá, 85, 174
 ab-sín-giššibir, 85, 174
 áb ba₄-ru-um, 141
 áb-gud-hi-a, 145
 absín (APIN), 173
 ab-sù-na, 173
 áb-suhúb, 141
 ág, 157
 ak, 112
 gišal, 2, 57, 149, 150
 gi₁al-a-ša-ga, 71
 gišal-šub, 71
 al—ak, 79, 112
 al—(ak), 80
 al—dar, 112
 al—dù, 80
 al-lub, 150
 al-lu₅-háb, 150
 gišal-sag, 57
 gišal-šub, 149
 gišal ù-šub, 149
 an, 88
 AN.AN (= suhúb), 144, 174
 an-na, 182
 an-na—dug₄/e, 182
 anše-BAR.AN, 142
 anše-ŠÚ.MUL, 142
 apin, 42(35), 101
 APIN (= absín), 173
 gišapin, 57, 77, 169
 gišapin numun, 80
 apin-šè, 101
 giš(apin)-túg-sig₁₈, 77
 ara_x, 106

The Farmer's Instructions

aša₅, 107

ba-ab-si, 157

ba-al, 109, 110, 111

ba-al-la, 115, 117

ba-la-ak^{ki}, 136

ba-lá, 157, 161

ba-ra-tur, 157

ba-ta-tur, 157

gišbad, 44(11)

bar, 123

BAR.AN, 142

BARxAN, 142

BAR.MUL, 141, 142, 147

bappir káb-dug₄-ga, 155

gišbar-dil, 167, 169

bar ég-ga, 136

bar-HI-ab, 123

bar-lá, 134

bí-za-gi/zi-li-li, 121

búr, 174

bùr, 111, 116, 124

da-an-ga, 102

dab₅, 67

dabin, 92

dal, 88

dal-ba-na, 115

gišdam, 80

dam-ga, 102

dé, 96

-dè, 25

de₅-de₅, 86

dib, 67

dilim, 83

dím, 111

DÍM-si-ga, 168

diri káb-dug₄-ga, 156

dù, 110, 112

du₆, 68

du₆-du₆, 57

du₆-du₆-lá, 107

du₆-ul, 92

du₈, 68, 92, 94

dub-ba-an, 103

dúb, 90, 182

dug ka-dagal-la, 162

dug ka-sal-la, 162

dùg—ak, 73

dul-dul, 108

dumu engar, 99

dumu engar-ke₄-ne, 42(27)

dumu gašam-ta, 73

dùn-dím, 42(24/15)

dùn-lá, 57

dùn-má, 115

gišdupsik, 57

dur, 84

dur-a-ab-tu-lu, 175

dur-TAG, 175

dúr, 125

dúr-dúr, 95

dur₁₀, 149, 150

uruda₁₀-al-lub, 150

duru₆, 108

e, *see* ég, 68, 109

e-(g), 136

E^{ki}, 136

e-pa₅(r), 109

e-si-na, 173

é anše, 126

é-tùr, 84

è, 45(2, 5), 96, 98, 157

e₁₁, 92

ég/k, 68, 136

ég, 109ff.

ég a-ša, 118

ég dal-ba-na, 115

ég dùn-na, 115

ég-e ú-sag₁₁-e/a, 115, 121

ég-ég ú-sag₁₁-e/a, 115, 121

ég-ga si-ga, 123, 124

ég gilim-ba, 115

ég kal-kal-ga, 67

ég murub₄, 115, 117

ég sa-dúr-ra, 115, 124, 130

ég sag-du, 127, 130

ég si-(g), 111

INDEX: Words Discussed

ég si-ga, 111ff., 115ff., 121
 ég zal-la, 115
 ég zi-DU, 126, 127, 129, 130
 eme, 72, 75
 eme-gír, 150
 eme-LAK 483-si-ga, 168
 eme-numun-na, 168
 en-na, 72
 en-na ...-a, 25
 en-te(en), 90
 engar, 42(27)
 ensí-sanga, 177
 ERÍN BARxAN, 144
 erín (gud-)suhub, 144
 erín-suhub, 145
 esag tur-tur, 107
 eš-dé-a, 99
 éš-gàr, 181
 éš káb, 164
 éš-murgu, 164
 eša, 92

Ga, 161
 gišga-ríg, 78
 gál—tak₄, 57
 gán-gur₁₀, 93
 gán-ku₅-da/rá, 175
 gišgán-ùr, 77
 garadin, 90
 gašam lú šu, 57
 gi-dim-dim, 158
 gi-dù-a, 121
 gi—ku₅, 122
 gi-gur-še-bal, 96
 GI.SIG, 100
 gi.šu-KIN, 122
 gi-šu-sig₁₁, 169
 gi—zé, 122
 gíd, 116, 157
 gidru-šè—ná, 96
 gig, 6
 gilim-ba, 115
 gín, 73, 116
 gišgín, 149
 gín-sal, 57

urudagín-sal, 70
 -gin₇, 92
 gír gud, 44(10)
 gír-sig₁₈, 169
 giš, 75, 102, 144
 gišgiš, 75
 giš-ab-ba, 90
 giš-bad-(d/r), 95
 giš—è, 98
 giš-è(a), 98
 giš-gi-dul₉-la^{ki}, 184
 giš-gi₄-a, 102
 giš-hur-ak, 134
 giš-kár, 102
 giš-rín lub-bi, 150
 giš-šè, 101
 giš-šu-ùr-ra, 102
 giš—ra, 95
 giš-ùr, 77
 giš-ùr-ra, 77
 GIŠGAL, 104
 gizal, 171
 gu—dúb, 80
 gu—ság, 102
 gu—tag, 80
 gú, 174
 gú—gá-gá, 57
 gú—gíd, 82, 103
 gú-šè, 119
 gú-TAG, 175
 gú/dur-tu-lu, 175
 gu₇, 104
 gub, 44(3)
 gud, 42(35), 158
 gud è, 75
 gud éš-gàr, 75
 gud giš-ùr, 75
 gud numun, 75
 gud numun diri, 74
 gud-suhúb, 141
 gur, 93
 gur-mah, 161
 gur-si-sá, 161
 gúr, 105
 gur₈, 102
 gur₁₀, 102, 105, 169

The Farmer's Instructions

guruš šà-sahar, 115

ha-bù-da, 71, 90, 149

hal, 94

gišhar, 72

har-ra-an-gur, 93

hašhur, 131

huš, 102

ì(-nun)-káb—dug₄, 156

ì-si-na, 173

íd, 109, 111f.

íd al-dù, 128

íd lugal, 126

igi—gíd, 79

igi-hur-sag-gá, 114

igi—kár, 68

iku uru₄-a, 143

íl-la, 57

IM.AK.A, 100

kušim-du₅/du₈-mu, 80

im-du₈-a, 121, 124

im káb-dug₄-ga, 156

IM.TAK₄, 91

IMxTAK₄, 91

in—bu₅-bu₅, 96

in—dé-a, 96

in—de₅, 96

in nu-dé, 98

indá, 83

inim sizkúr-ra, 107

iší, 142

itu še-sag₁₁-ku₅, 170

iz-zi, 124

Ka, 130, 161ff.

KA, 160ff.

KA-a-DU, 119, 131, 132

KAxA = káb, 153ff.

KAxA-dug₄-ga, 153

KA—ak, 74, 160, 162

KA-DU, 131

kuška-dù, 73

ka—dug₄, 162

ka id-da, 121, 136

KAxIM, 154

ka-kéš-rá, 144

ka-sal, 71, 84

giška-šú, 80

ka-tab, 87

ka—tùm, 131

ka ù bad-da, 132

ka ù bar-ra-da, 132

kab/káb-di(—ak), 160

kab/káb—dug₄/di, 153ff.

káb, 164

káb(KAxA), 153ff.

káb!—ak, 74

káb-di—ak, 74

káb—dug₄/di, 74

dugkáb-dug₄-ga, 162

káb-dug₄-ga giškir₆, 155

káb-dug₄-ga giškir₆ gír-su^{ki}, 158

káb-me, 160

káb-me—ak, 74

kak, 83

kak-da-ga-šè, 78

kak-KU, 97

*kak-ku₅, 97

(giš)kak-UD-šè—ak, 78

kak-ús, 97

kar, 179

kaš-bi káb-dug₄-ga, 155

kéš, 107

ki-gál, 131

ki-duru₅, 69

ki-gar, 70

ki-gar—dug₄, 93

KI.GIŠGAL, 104

ki-ib, 6

KI.KAL, 77

ki-n-gud, 158

ki-sag-e-ba, 57

ki-sahar, 87

ki-sì-ga, 114

ki-su₇, 92, 94, 119

ki-su₇—e₁₁, 92

ki-su₇ gud!-suhúb, 143

ki-su₇ zag-bi, 107

INDEX: Words Discussed

ki-suku₄, 104
 ki-še-er—tuku, 69
 ki-še-sur-ra, 104
 ki-šúr, 78
 KI.UD, 93, 132
 KI.UD ág, 107
 kíđ, 106
 kilim, 87, 88
 KIN, 90, 168, 169
 urudaKIN, 90
 kin—ak, 79
 kin ég x íđ AxMUŠ, 128
 kin-dù-a, 120, 128
 kin-dù-a ég zi-DU, 130
 kin ensí, 120
 KIN-gúr, 89
 kin KAS₄, 120
 KIN-ku₅, 170
 kin-sahar, 115, 121
 kin-sal, 57
 kin-sig-gin₇, 92
 kin-šè—ak, 182
 KIN ú-sahar, 130
 KIN ú sahar-ba, 121, 124, 126
 kindax(= LAK 419), 106
 giš₆kiri₆ káb-dug₄-ga, 154
 giš₆kiri₆ káb-dug₄-ga-ta, 158
 giš₆kiri₆ ti-[ra-áš], 121
 kislak (KI.UD), 93
 KU-KU-ru, 95
 KU-KU-ru-na, 82
 KU-nu, 103
 KU-ru-(n), 95
 kù-sig₁₇, 169
 ku₅(r), 70
 kul, 105
 kun, 97, 101
 kun íđ-da-ka, 136
 kun-zi-da, 129, 130, 134, 136
 kunga, 147
 kur₆, 181
 kur₇-ak gud-suhúb, 144
 kùš, 116

la-ag, 86
 la.IM.ak, 104
 lá, 92, 96, 161
 lá-ì káb-dug₄-ga, 156
 lag, 104
 LAGABxU, 77
 LAK 483, 168
 LAK 483-si-(g), 167
 li-bí-d[u ...], 152
 lillan, 88
 lu-gú, 175
 lú suhub-ba, 144
 lú še bad-rá, 94
 lub-bi, 150
 giš/uruda|ub-(bi), 149
 giš|ub-bi-du, 149
 giš|ub-bi-du mu-sar-re, 149

gišMa-nu, 156
 gišmá diri-ga, 160
 gišmá ru-ru-gú, 160
 máh, 144
 mar, 57
 gišmar, 57, 93, 95
 gišmar-gíd-da, 44(3), 93
 mar-mar, 96
 mar še ùr, 57
 mud, 72
 MUL, 142, 147
 MUR₇, 68
 murub₄, 115, 117
 mušen, 88

Ná, 96
 NAG, 153
 nag-dug₄-ga, 162
 nag-ku₅, 116-18, 121, 123, 127, 130, 132ff., 136, 183
 NAM, *see* bir₅
 níg-gul, 78
 gišníg-gul, 149
 níg-gul—ak, 78
 túgníg-HAR-ra-ak-a, 94
 níg-HAR-ra-tur-tur, 94

The Farmer's Instructions

níg-kas₇ sahar zi-ga, 121

níg-ki-gar, 93

níg-ki-luh, 155

gišníg-ku₅, 84

níg-ur₅/ùr, 94

nimgir, 158f.

^dnin-kilim, 87

nina^{ki}-šè-gin, 119

ninda, 116

ninda-zì káb-dug₄-ga, 155

ninda ka-gu₇, 92

nindá, 83

nir, 95

nu-ak, 120

nu-tuku, 119, 127

numun-sag-gá, 88

NUMÚN, 122

NUN.ME.TAG, 57

gišnunuz-apin, 101

PA, 84

pa₄-a-da-ga, 111, 126

pa₄ ba-al, 124

pa₄ ba-al-la, 123

pa₄-sig, 116

pa₄-síg-an-na, 116

pa₄/pa₅-(r), 109, 111ff.

pa₅ a-luh-ha, 179

PAP(?) APIN, 105

peš-mur₇, 155

PÉŠ *see* kilim,

péš, 88

pú, 124

pù, 112

ra, 95

ra-ra, 44(11), 87

Sa, 72, 125

sa-dul/du-ul, 126

sa-dúr, 115, 125f., 128, 130, 181

sa-dúr-ra, 86

sa-hir, 96

sa-KU, 126

sa—lá, 71f.

sa-ma-ná, 89

sag, 161

sag 1-kam, 125

sag 2-kam, 125

sag a-ki-ta, 125

SAGxA, 154

sag an-na, 125

sag-gál, 162

sag—ha-za, 79

kušsag-kéš, 73

gišsag-lumlub, 149

sag₁₁, 70, 168

sag₁₁(KIN), 70, 168f.

sahar, 124

sahar si-ga, 110f., 115, 130

sahar šu-bal-a, 115

sahar šu-ti-a, 115

sahar ú-sag₁₁, 121, 123

sahar zi-ga, 115

sar, 116

si, 157

si-(g), 109, 111, 115

si-luh, 108

si-par₄(l), 96

si—sá, 93, 175

si-tag, 168

sì-ge, 58

sig-sig, 87

sìg, 179

SIG₇-a, 70

sig₁₈(KIN), 70, 168f.

silim, 90

sizkúr, 92

sizkúr a-šà-ga, 92

sizkúr a-šà kéš-rá, 106

sizkúr gišapin, 106

sizkúr—dug₄/e, 107

sizkúr še-KIN-ku₅, 106

su, 182

su-lá, 107

su-su-(g), 157

sù, 88

sù-lá, 107

su₇, 93f.

INDEX: Words Discussed

SU₇.SUM, 98
 *sugul, 142
 suhirin(SU₇.SUM), 98
 suhúb, 141ff.
 kušsuhúb, 143
 suhul, 142
 suhur, 84
 sukkal mah, 69
 suku₄, 104
 sukud, 116, 124
 sulgar, 142
 sum.sikil A.HA.BA, 164
 sum-sikil káb-dug₄-ga, 156
 sum.sikil za-ha-tin, 164

Šà-, 115
 šà GN, 106
 šà-gud, 115
 šà-mar-sa, 115
 šà—x, 105
 še, 6, 44(5), 179
 še anše gu₇, 168
 še bad-(rá), 95
 še bad-rá, 94
 še—bal, 108
 še bir-ak, 89
 še—búr-ra, 98
 še—dé, 98
 (še)—dé, 95
 še—dé-a, 96
 gišše-du₁₀, 113
 še—è, 96
 še-er-tab-ba, 70
 še gán gud-suhúb a-šà, 143
 še—gar, 76
 še—gaz, 44(10), 95
 še giš-è-(a), 97
 še giš-è-a, 98, 143
 še giš—ra, 95
 še (giš) ra-(ah/an), 95
 še gud gu₇, 167
 še gud-suhúb, 144
 še gur₁₀-gur₁₀, 90
 še káb-dug₄-ga, 155
 ŠE.KIN, 90, 102, 168

še-KIN-ku₅, 90
 še—lá, 44(12), 45(17), 93, 96
 (lú) še-lá-ki-ta, 96
 ŠE.LUGAL, 105
 še-luh, 88
 še-luh-ha-an-sù-a, 88
 še ma-ma-ra-ra-a *see* mar-mar,
 še mar-mar, 96
 še-ra-ah, 94
 še—ra-(ah), 95
 (ŠE.SAG).LUGAL, 88
 še—sìg, 95
 še šu-hu-uz, 91
 še—šub, 95
 še—ús, 95
 še-zil-zil, 89
 IMšèg-gá, 103
 šeg₆, 72
 ŠEŠ-dúr, 125
 ŠEŠ-dúr-rá/a, 128
 ŠEŠ-gub-ba, 128
 šibir, 85, 174
 šid-bi, 106
 giššinig, 113
 giššir-šir, 81
 giššù, 90
 šu-h/ru-uz, 91
 šu-huz—ak, 91
 giššù-kár, 72
 šu-KIN, 169
 šu-kin-dab₅, 169
 šu/šú-luh—ak, 115, 179
 šu-nir, 150
 šu-sag₁₁, 122
 šu—sag₁₁/sig₁₈, 169
 šu-si-ta, 83
 šu-ùr, 134
 šu-ùr-ra, 91
 šu-uš-kin, 169
 šú, 71
 ŠÚ.MUL, 142, 147
 šub, 95
 šum, 73
 šum^{uruda} še ŠE.KIN-ŠE.KIN, 90
 šúr, 102

The Farmer's Instructions

tag, 175
 TAG.ME, 58
 TAG-TAG, 44(8/97)
 TAK₄, 91
 TAK₄.IM, 91
 til, 184
 tu-lu, 175
 TÚG, 168
 túg-gur₈, 168
 gištúg-gur₈, 77, 167
 gištúg-gur₈/gur, 169
 túg-KIN, 168f.
 gištúg-sag₁₁/sig₁₈, 167
 túg-si-ga, 168
 túg-sig₁₈, 71, 75, 77
 giš(apin)-túg-sig₁₈, 77
 túg-ŠE.KIN, 168
 túg-tag, 168
 tuk_x, 106
 tùn, 115

Ū-in-ga, 101
 ú-KIN, 170
 ú-sag₁₁, 115f., 119, 121-25
 ú-sag₁₁ á 2-a-ba, 124
 ú-sag₁₁—zé, 122
 ú-sal, 129
 ú sahar, 121
 ú-tag, 71
 ú-UR₄, 122
 ù, 131
 ù ki-ta tùm, 126f., 132
 ù-luh—sù, 88
 ù-sur, 132
 ù-šub, 149
 ù túm, 132
 ù ...-ed, 25
 ù/u₅, 132
 u₄—a-gin₇, 92
 u₄ ... -(a), 24
 u₄ ... -a-ta, 25
 u₄ á-bi, 90
 u₄-tur, 92
 u₄-ul-(la), 67

u₄-ul-lu, 67
 u₅, see ù
 u₅-la, 100
 giš_u₅-tag, 71
 u₂₀, 6
 úd, 6
 úd-duru₅, 6
 udu šu-nir, 152
 uga, 105
 ugu—dé/DU, 79
 ukkin-bi, 106
 umbin-gud, 71, 100
 úr, 171
 ùr, 102
 ur₄-ur₄-KUL, 89
 ur₅—gúr, 89
 uru₄, 98
 ús, 125
 usu-tuku, 44(3)
 úš, 184
 úš-a, 117, 126

Zag 5-ús, 128
 zag-sig₁₈, 169
 zag—tag, 58
 zag—tak₄, 58
 záh-bi, 179
 zar—du₈, 91
 zar—sal, 91
 zar-zar, 108
 zàr, 91
 zàr-tab, 90f.
 zé, 70
 zé-na, 155
 zi, 69
 zi-da, 129
 zi (-r), 90
 zi-ri-gúm, 69
 zì-dub-dub, 92
 zì-gu, 92
 zì káb, 164
 zì káb-dug₄-ga, 156
 zì-sig₁₅, 92
 zil, 89
 zíz, 6

INDEX: *Words Discussed*

zíz—dé-a, 96

zú, 75, 77

gišzú, 78

zú al-lub gištaškarin, 150

zú-lum káb-dug₄-ga, 155

Index of Akkadian Words

References to lines in the bilingual B₃ are given in parentheses.

**Abātu?*, 94
aburru, 125, 126, 128, 129
agammu, 130
a/ehzu, 70
akkullu, 78
akālu, 43(1/93), 104
alpu, 42(30/24), 43(1/93), 45(11)
amandēnu, 108
apkisitu, 42(2/59), 174
apputtum, 179
arādu, 92
arkatu, 129
asumatu, 80

Bābil še'e, 44(4/104), 45(16/104)
baqālu, 158
baqāmu, 70
batqu, 115
batāqu, 134
**batātu?*, 94
bašālu, 41(17/13), 72
be'ēšu, 45(7/95), 94, 95
bēšu, 94
biltu, 97
bitiqtu, 174
bittu, 44(7/95), 94, 95
BUR.BAL, 125
butuqtu, 134

dannatu, 129
dannu, 41(21/21)
dilātu, 100
dāšu, 44(11, 12), 95

Eburru, 126
edēpu, 154
EGIR.BI, 129
ekēku, 84
ekēmu, 179
elū, 44(2, 5), 92
epinnu, 41(19/19), 42(29/23), 75

eqlu, 41(17/13)
erbu, 43(9/66)
erimmatu, 101
erimtu, 41(20/20), 73
eriqu, 43(1/93), 44(3), 93
erēšu, 99
erēšu/arāšu, 174
ešēdu, 170
ešrišu, 70
eššu, 42(25/16)
ezzu, 102

Gadmāhu, 94
gisappu, 44(8/97, 11), 95

Habburu, 43(7/64)
habātu, 44(9/98, 10), 95
hamadīru, 89
hanābu, 82
harbu, 77
harāšu, 91
harāšu, 174
haṭṭu, 45(18/105)
(ina/ana) haṭṭi šunūlu, 96
herū, 57, 111
himmatu, 122
hirsu, 174
hišihitu, 41(22/22), 74

īdu, 41(21/21)
ikkaru, 42(27)
iku, 109, 111, 132, 136
ikū, 136
im/ndu, 154, 160, 163
imittu, 163
imrū, 43(1/93)
ingu, 71
ishu, 126
itnik/qu, 174
ittū, 44(8/97)
itū, 129
išartu, 42(1/57)

INDEX: Akkadian Words

išaru, 174
išinnu, 173
išru, 175

Jarahhu, 88

Kabāsu, 142, 145
kadāru, 71
kakkabānu, 142
kakkussu, 97
kālū, 115
kamkissu, 150
kanagurru, 93
kaparru, 97
kaptukkū, 154
karāsu, 44(8/97)
kaslu, 100
k/gazāzu, 174
kezēru, 84
kibru, 41(16/12), 104, 105
kibtu, 6
kikkīšu, 100, 121
kilzappu, 95
kirbānu, 43(6/60), 86
kissu, 84
kišdu, 100
kišādu enšu, 103
kiššu, 91
kursinnu, 149, 150
kurullu, 91, 92
kurussu, 44((8/97)
kušīru, 100

Labīru, 42(26/17)
lapātu, 44(8/97)
latāku, 41(21/21), 74, 154
lillānu, 43(12/70), 88
litiktu, 164
lubbū, 150

Mahāšu, 168
**maj(a)rīnu*, 168
majāru, 77, 168
malhu, 115
maqquaru, 41(19/19)
mār ikkari, 42(27)
mār ummāni, 41(18/18)
marru, 57
maššar erebi, 88
mašā'u, 82
maškakatu, 77

maškanu, 44(6/94, 7/95), 93, 94
mašqūtu, 162
matqu, 115
maṭū, 157
mazrū, 41(21/21), 74
mihru, 130
mīl kiššati, 132
muballīṭtu, 122
mūlū, 57
mupattītu, 97
muqallū, 89
mušpalu, 57
mušēlū, 108

Nadū, 44(6/94)
nadū ša maškani, 94
nagabbu, 91
nagduqqū, 154
nāhu, 44(6/94)
nakāmu, 122
nakāsu, 91, 122
nalbašu, 94
nālu, 45(18/105), 108
nappahu, 154
napšāru, 96, 98
naqāru, 84, 91
naqū, 45(13/116)
našū, 100
naṭālu, 42(32)
nekelmū, 79
nērebu ša eršeti, 102
nērebu ša šadi, 102
nesū, 96
nidūtu, 94
niggallu, 90
niqū, 44(13/106), 45(19/101), 92
nīru, 42(24/25)

Pa'ašu, 78
pahāru, 92
palgu, 111
palk/qu, 115
palāk/qum, 115
pariktu, 43(3/59), 174
parū, 141
paruššu, 97
pašālu, 95
pašāru, 98
pašru, 115
pāšu, 41(19/19)
petū, 94, 95
pitiqtu, 100
puqdu, 102

The Farmer's Instructions

Qablû, 150
qadādu, 89
qamāmu, 84
qaqqaru, 43(4/61)
qaqû, 88
qinnazu, 42(26/17)
qû (qâ mahāšu), 102
qubûru, 78
quliptu, 89
qullupûtu, 105

Ṛahāšu, 87, 95
rapāsu, 95
rāši emūqi, 44(3)
rāši uzni, 44(15/103)
rību, 162
ripsu, 94

Sabālu, 99
 SA.DUL, 139
 SA.DUL.BI, 129
 SA.KU, 125, 128
 SA.KU.BI, 128f.
 SAG 1, 129
 SAG 2, 129
 SAG.BI 2.KAM, 129
sakku, 87
sakāku, 87
sakīku, 87
sā/amānu, 89
sanāqu, 103
sekēru ša mē, 117
sēru, 169
simanu, 90
simdu, 88
siphu, 105
**sugullānu*, 142
sug/kullu, 142, 145
sukku epšu, 87
sūtu, 41(20/20), 73

Šaddu, 84
šepēru, 174
šibaru, 97
šuppuru, 176
šuppuru ša iki, 67

Šabāsu, 82
šadādu, 57

šaharru, 96
šalālu, 82
šamātu, 84
šamru, 102
šapāku, 102

šapal bilti, 97
šapiltu, 44(15/103)
šaqû, 129
šaqû ša eqli, 153
šarammu, 98
še'u, 43(11/69), 44(2, 5, 10, 12, 14/102), 45(17)
šelib/ptu, 149
šeluhanserru, 88
šēp alpi, 44(10)
šina, 44(4/104), 45(16/104)
šinnu, 4(9/66), 44(8/97)
šinṭētu/ šinṭû, 73
šip[ku], 132
šuburru, 125, 126, 128, 129
šuhuppatu, 142
šuhuppu, 142
šumamtu, 91
šurru, 82
šūru, 122
šuššāru, 41(19/19)

ṭabāku, 122
tākaltu, 42(24/15)
tarammu, 44(13/106), 98
tašqītu, 175
tēnû, 41(20/20), 73
terīktu, 175
tespītu, 101
tuzzu, 94

ṭabu, 73

U'u, see *še'u*
ukkušu, 102
ul-lu-mi-ir-ši-it, 67
ul-lum-er-še-et, 67
ummānu, 41(18/18)
unūtu, 41(19/19), 72
urullu, 158
uzuzzu, 44(3, 4/104, 15/103), 45(16/104)

Zabālu, 67, 99
zakû, 95
zakûtu, 45(18/105)
zappu, 97

INDEX: *Akkadian Words*

zarāqu, 100
zāri šapilti, 96
zarû, 44(12), 45(17), 74, 98
zâru, 175
zibbat haṭṭi, 97

Index of Texts Quoted

3N-T247:6 57 to 5
 3N-T255 = UM 55-21-287 177 8.1.2.1.
 3N-T293 = UM 55-21-300 177 8.1.2.1.
 3N-T322 165 note 20
 3N-T344:19 160 7.4.5.2. (h)
 3N-T495 182 8.1.4.1.
 3N-T668 = UM 55-21-372 182 8.1.4.1.
 3N-T923 182 8.1.4.1.
 6N-T138 155 7.4.3.2. (2) (c)
 6N-T270 156 7.4.3.2. (5)
 6N-T426 154 7.4.3.2. (1) (a)
 4R 18* 6:8f. = KAR 91:5' 137 note 15
 4R 27 1:4f. 113 7.1.1.3.1.
 5R 52 n. 2 102 note 43
 5R 52 n. 2:41 78 to 32
 °Atiqot 4 32 95 to 102
 °Atiqot 4 67:6 105 note 94
 A 162 82 to 46
 A 624 161 7.4.6.2. (a)
 A 1157 68 to 3
 A 2577 91 to 76-78
 A 2581 101 note 24
 A 2644 111 7.1.1.2. (b)
 A 2644 126 7.1.3.4. (a)
 A 2644 128 7.1.3.4. (a)
 A 3125 126 7.1.3.4. (a)
 A 3125 128 7.1.3.4. (a)
 A 3127 130 7.1.4.3.
 A 3305 173 7.6.1.
 A 4270 130 7.1.4.3.
 A 5151 104 note 73
 A 5293 101 note 24
 A 5469 119 7.1.1.4.3. (f)
 A 5701:30 154 7.4.3.2. (1) (a)
 A 5832 72 to 13
 A 5923 74 to 20
 A 26328 101 note 24
 A 26328 74 to 20
 A 32045 131 7.1.4.4.1. (b)
 AAS 62 144 7.2.3.2.2. (3)
 AAS 63 147 note 8
 AAS 75 68 to 4
 AAS 83 143 7.2.3.2.1. (1)
 AB 25 41:16 96 to 102
 AbB 11 40:17f. 107 note 123
 AbB 11 108:21,27 107 note 123
 AbB 9 4 171 note 5
 Aegyptus 8 264 11 111 7.1.1.2. (b)
 AfO 10 362 170 7.5.2.2. (b)

AfO 19 pl. 17f. i 19 132 7.1.4.4.2.
 AfO 28 112 137 note 14
 Aluzinnu iii 19 95 to 97
 Amherst 3 155 7.4.3.2. (2) (a)
 AMT 68 l r. 2 158f. 7.4.5.1.
 An = Anum I 237 67 to 1
 An = Anum VI 307 169 7.5.2.1.
 AnOr 1 33 118 7.1.1.4.3. (b)
 AnOr 1 33:21 137 note 11
 AnOr 1 35,36 68 to 4
 AnOr 1 53 132 7.1.4.4.2.
 AnOr 1 58 132 7.1.4.4.2.
 AnOr 1 61 132 7.1.4.4.2.
 AnOr 1 76:3ff 147 note 8
 AnOr 1 79 111 7.1.1.2. (b)
 AnOr 1 79 115 7.1.1.4.1.
 AnOr 1 144 115 7.1.1.4.1.
 AnOr 1 144 136 note 8
 AnOr 1 239 96 to 102
 AnOr 7 179 111 7.1.1.2. (b)
 AnOr 7 184 122 7.1.2.1.
 AnOr 7 199 111 7.1.1.2. (b)
 AnOr 7 199 115 7.1.1.4.1.
 AnOr 7 240 115 7.1.1.4.1.
 AnOr 7 257 155 7.4.3.2. (3)
 AnOr 7 257 157 7.4.4.1.
 AnOr 7 263 124 7.1.2.3. (e)
 AnOr 7 264:32 147 note 8
 AnOr 7 331:34 106 note 112
 AnOr 7 339 103 note 58
 AnOr 7 339 82 to 46
 AnOr 7 355 155 7.4.3.2. (1) (c)
 AnOr 7 355 156 7.4.3.2. (7)
 AnOr 12 101 107 note 114
 AnOr 13 88 170 7.5.2.2. (b)
 AnOr 30 24 no. 17 132 7.1.4.4.2.
 AnOr 45 no. 59 155 7.4.3.2. (2) (a)
 AnOr 45 no. 59 158 7.4.4.3.
 AnOr 45 no. 59 vi 9ff. 155 7.4.3.2. (2) (c)
 AnOr 45 no. 60 x 17ff. 155 7.4.3.2. (2) (a)
 AnOr 45 no. 61 xii 9 155 7.4.3.2. (2) (a)
 AO 8091 155 7.4.3.2. (2) (b)
 AO 8091 156 7.4.4.1.
 AO 13204 ii' 8 150 7.3.5.
 AOAT 25 89:120 78 to 32
 AOAT 25 (1976) 89:124f. 80 to 42
 AOAT 25 160:264' 159 7.4.5.2. (c)
 AOAT 25 362 95 to 101

INDEX: Texts Quoted

AOS 32 D 24 126 7.1.3.4. (a)
AOS 32 D 24:3 92 to 80
AOS 32 E 19:5f. 72 to 16f.
AOS 32 G 26 111 7.1.1.2. (b)
AOS 32 H 21 93 to 92
AOS 32 I 35 111 7.1.1.2. (b)
AOS 32 KK 11 126 7.1.3.4. (a)
AOS 32 R 3 92 to 87
AOS 32 W 81 111 7.1.1.2. (b)
Aramco World 15 (1964) 24:3,5 96 to 102
ARET 5 20 ix 5 = 21 x 2 165 note 16
ARET 5 20 x 7 = 21 xi 5 1 158 7.4.5.1. (a)
ARM 6 5:174 129 7.1.3.4. (d)
ARM 14 13:28 122 7.1.2.2.
ARN 11:5f. 57 to 5
ARN 46 r. 3 67 to 1
ARN 79 181 8.1.3.3. to 3
ArOr 25 557 126 7.1.3.4. (a)
ArOr 25 557 128 7.1.3.4. (a)
ArOr 37 484:57 82 to 47
ArOr 37 485:85 105 note 90
AS 16 4 ii 2' 101 note 30
ASJ 4 116 iv 1f. 155 7.4.3.2. (2) (c)
ASJ 8 (1986) 105 iii 9 72 to 13
ASJ 8 109f. 143 7.2.3.2.1. (2)
ASM 68:4' 155 7.4.3.2. (2) (c)
ASM 68:4' 156 7.4.3.2. (7)
ASM 68:7 93 to 92
ASM 1204 130 7.1.4.1.
ASM 1204 126 7.1.3.4. (a)
ASM 1204 128 7.1.3.4. (a)
AUCT 1 458 156 7.4.3.2. (5)
AUCT 1 557 88 to 67f.
AWL 2 139 note 44
AWL 3 130 7.1.4.1.
AWL 4 iii 5 168 7.5.1.2. (b) (4)
AWL 4 vii 5 174 7.6.2. (1)
AWL 9 i 2f. 167 7.5.1.2. (a)
AWL 9 i 4 167 7.5.1.2. (b) (2)
AWL 9 vi 1 168 7.5.1.2. (b) (4)
AWL 10 i 2, 133 = AWL 14 iii 2 167 7.5.1.2. (b) (2)
AWL 11 i 2 167 7.5.1.2. (b) (2)
AWL 12 i 2, 133
AWL 13 iii 2 167 7.5.1.2. (b) (1)
AWL 14 iii 2 167 7.5.1.2. (b) (2)
AWL 39 iii 7 168 7.5.1.2. (b) (3)
AWL 79 168 7.5.1.2. (b) (5)
AWL 85 168 7.5.1.2. (b) (5)
AWL 162 = AWL 79 168 7.5.1.2. (b) (5)

BA 5 520 no. 61 136 note 5
BA 5 617:9f. 134 7.1.4.5. (e)
Bab 8 pl. 6 24 111 7.1.1.2. (b)
Bab 8 pl. 6 24 136 note 8
BASOR 88 12:53 34 to 1
BE 3 40 80 to 40

BE 3 71:14 90 to 75
BE 3 71:15 90 to 75
BE 3 88:6f. 111 7.1.1.2. (a)
BE 3 92 82 to 46
BE 3 100 156 7.4.4.1.
BE 3 100: 27ff. 155 7.4.3.2. (3)
BE 3 104 162 7.4.6.2. (c)
BE 6/1 46 129 7.1.3.4. (c)
BE 6/1 46:18 139 note 45
BE 6/2 43 181 8.1.3.3. to 3
BE 14 9a 90 to 75
BiMes 3 15 vi 5 171 note 2
BIN 3 121 128 7.1.3.4. (a)
BIN 5 131 132 7.1.4.4.2.
BIN 5 225 88 to 66
BIN 5 230 93 to 92
BIN 5 237 126 7.1.3.4. (a)
BIN 5 237 138 note 38
BIN 5 258 100 note 11
BIN 5 272 iii 86 to 55-56
BIN 5 272:140ff. 111 7.1.1.2. (b)
BIN 5 272:140ff. 115 7.1.1.4.1.
BIN 5 272:173 124 7.1.2.3. (e)
BIN 5 272:183ff. 122 7.1.2.1.
BIN 5 272:209 111 7.1.1.2. (b)
BIN 5 276 82 to 46
BIN 5 342 86 to 60
BIN 7 103 144 7.2.3.3.
BIN 7 114-138 144 7.2.3.3.
BIN 7 116 144 7.2.3.3.
BIN 7 147 144 7.2.3.3.
BIN 8 144 75 to 26-28
BIN 8 203 75 to 26-28
BIN 8 215:1f. 161 7.4.6.2. (a)
BIN 8 255:10 102 note 50
BIN 8 388 ii 1 150 7.3.5.
BM 13132 100 note 17
BM 13332 131 7.1.4.4.1. (b)
BM 13512 156 7.4.3.2. (4)
BM 14165 68 to 3
BM 14309 131 7.1.4.4.1. (b)
BM 14334 131 7.1.4.4.1. (b)
BM 14334 132 7.1.4.4.2.
BM 14615 132 7.1.4.4.2.
BM 14615 iii 25 140 note 56
BM 14616 120 7.1.1.4.3. (h)
BM 16369 76 to 29
BM 17759 69 to 6
BM 17759 121 7.1.1.4.3. (i) (3)
BM 17765 ii 6 106 note 110
BM 21335 119 7.1.1.4.3. (g)
BM 23331 ii 4 95 to 97
BM 23331 ii 8 84 to 52-53
BM 23631:63ff. 104 note 83
BM 26198 143 7.2.3.2.1. (2)
BM 32045 131 7.1.4.4.1. (b)
BM 36979 102 note 44

The Farmer's Instructions

- BM 54666 122 7.1.2.2.
 BM 57994 159 7.4.5.2. (d)
 BM 57994 165 note 21
 BM 78111 152 note 2
 BM 80001 159 7.4.5.2. (d)
 BM 80001 i 17f. 160 7.4.5.2. (d)
 BM 80149 56
 BM 80758 108 note 131
 BM 93086 122 7.1.2.2.
 BM 105347 107 note 114
 BM 105367 139 note 39
 BM 105425 111 7.1.1.2. (b)
 BM 105429 122 7.1.2.1.
 BM 105637 126 7.1.3.4. (a)
 BM 111759 146 7.2.4.2.
 BM 111800 115 7.1.1.4.1.
 Boson Tavolette 333 92 to 87
 Boson Tavolette 369 121 7.1.2.1.
 Boson Tavolette 372 r. 7 95 to 102
 BRM 3 81:5f. 161 7.4.6.2. (c)
 BRM 3 117 130 7.1.4.3.
 BRM 3 119:5 137 note 17
 BRM 3 120 121 7.1.2.1.
 BRM 3 121 121 7.1.2.1.
 BRM 3 121 124 7.1.2.3. (e)
 BRM 3 121 126 7.1.3.4. (a)
 BRM 3 126 126 7.1.3.4. (a)
 BRM 3 144:1,6 70 to 9
 BRM 3 162 111 7.1.1.2. (b)
 BRM 3 180 98 to 105
 BRM 4 33 i 4 174 7.6.2. (4)
 BRM 4 33 iii 5 174 7.6.2. (2)
 BSA 3 41 156 7.4.3.2. (4)
 Bulletin of the Buffalo Soc. of Nat. Hist. 11
 (1915) 2:20 93 to 92
 BWL 242:28f. 122 7.1.2.2.
 BWL 257:8f. 138 note 36
 CBS 7849 + Ni 4574c + Ni 9705 177 8.1.2.1.
 CBS 8543 r. 7' 160 7.4.5.2. (h)
 CBS 11319 + i 19 154 7.4.2.2. to 10'
 CBS 13901 (SEM 42) 4
 CBS 13922 + CBS 14130 171 note 3
 CBS 13968 177 8.1.2.1.
 CBS 14049 + N 846 182 8.1.4.1.
 CBS 14130 + CBS 13922 171 note 3
 CHÉU 37 121 7.1.2.1.
 CHÉU 41:7 155 7.4.3.2. (2) (b)
 CHÉU 81:5 104 note 73
 CHÉU 90 82 to 46
 CHÉU 100 68 to 3
 CHÉU 100 i 7f. 99 note 8
 Code of Hammurabi §240 160 7.4.5.2. (d)
 Code of Hammurabi §242-43 101 note 30
 Code of Hammurabi §260:16 168 7.5.1.6.
 CSTR 537 82 to 46
 CSTR 588 77 to 32
 CSTR 588 78 to 32
 CSTR 710:3 105 note 94
 CT 1 3; 32; 43 81 to 46
 CT 1 18f. v 15, 49 iv 1 155 7.4.3.2. (2) (a)
 CT 1 22 iii 10f. 106 note 107
 CT 1 22 iii 7f. 91 to 80
 CT 1 22 iii 8 91 to 80
 CT 2 24:14 114 7.1.1.3.2. (b)
 CT 2 3:3, 6 67 to 1
 CT 3 10 76 to 29
 CT 3 35ff. 119 7.1.1.4.3. (g)
 CT 3 35ff. 131 7.1.4.4.1. (a)
 CT 3 35ff. 137 note 11
 CT 3 35ff. 140 note 53
 CT 3 39:240 137 note 11
 CT 4 47b:5 129 7.1.3.4. (c)
 CT 4 9b 136 note 5
 CT 7 15 106 note 110
 CT 7 42 121 7.1.1.4.3. (i) (3)
 CT 7 42 69 to 6
 CT 9 18 158 7.4.4.3.
 CT 9 18:41, 74f. 155 7.4.3.2. (1) (b)
 CT 9 28 99 note 6
 CT 10 13 iii 1 155 7.4.3.2. (2) (a)
 CT 10 49 131 7.1.4.4.1. (b)
 CT 10 49 132 7.1.4.4.2.
 CT 14 49 122 7.1.2.2.
 CT 17 25:24 175 7.6.2. (9)
 CT 19 7 164 note 5
 CT 32 41 105 note 94
 CT 32 41 i 18 152 note 6
 CT 36 26f. 138 note 36
 CT 39 19:126 104 note 75
 CT 42 15 ii 4 76 to 29
 CT 44 32 iii 32'ff. 99 note 8
 CT 50 61 164 note 4
 CT 51 168 (+) 79-7-8,60 42 164 note 5
 CT 58 68 159 7.4.5.2. (d)
 CT 58 69 159 7.4.5.2. (d)
 CT 58 8 108 note 131
 CTNMC 24:3f. 100 note 11
 CTNMC 26 155 7.4.3.2. (1) (c)
 Curse of Agade 176ff. 26
 DAS 303 139 note 39
 DAS 402 67 to 1
 Dialogue 1 23
 Dialogue 2 173f. 89 to 72
 Dialogue 2 23
 Dialogue 2:23 179 8.1.2.3. to 10
 Dialogue 3 23
 Dialogue 3:2 70 to 9
 Dialogue 4:45 79 to 35-37
 Dialogue 5 23
 Dialogue 5:176 92 to 81
 Dialogue 5:195 80 to 42
 Dimmanianusani 61 80 to 42
 DP 57 151 7.3.6.
 DP 57 vi 4 150 7.3.5.

INDEX: *Texts Quoted*

DP 148 ii 5f. 93 to 88f.
 DP 220 ix 3 91 to 76-78
 DP 351 94 to 92
 DP 394 vii 3 174 7.6.2. (1)
 DP 395 vii 4 174 7.6.2. (1)
 DP 410 i 2 80 to 43-45
 DP 411 iii 4 80 to 43-45
 DP 418 ii 4 81 to 43-45
 DP 423 iii 5 81 to 43-45
 DP 424 113 7.1.1.3.1.
 DP 427 ii 4 80 to 43-45
 DP 437 x 5 78 to 32
 DP 446 iii 1 77 to 32
 DP 450 vii 4 77 to 32
 DP 452 vi 5 77 to 32
 DP 458 ii 2 77 to 32
 DP 461 ii 1 77 to 32
 DP 471 ii 1 69 to 4
 DP 490 ii 4 72 to 16f.
 DP 492 viii 10 72 to 16f.
 DP 492-94 72 to 15
 DP 493 xi 1 72 to 15
 DP 498-99 72 to 15
 DP 502 72 to 15
 DP 523 i 2 167 7.5.1.2. (b) (2)
 DP 524 i 2 167 7.5.1.2. (b) (2)
 DP 529 vi 4 168 7.5.1.2. (b) (3)
 DP 546 87 to 66
 DP 546 88 to 66
 DP 557 ii 3 167 7.5.1.2. (b) (1)
 DP 559 ix 6 95 to 96
 DP 564 iv 2 95 to 96
 DP 595 168 7.5.1.2. (b) (4)
 DP 595 iii 2ff. 167 7.5.1.2. (a)
 DP 596 168 7.5.1.2. (b) (4)
 DP 597 168 7.5.1.2. (b) (4)
 DP 599 i 4f. 167 7.5.1.2. (a)
 DP 604 ii 2; v 5f. 94 to 94
 DP 605 i 5; iii 1,5; v 1 94 to 94
 DP 614 128 7.1.3.4. (b)
 DP 621 105 note 86
 DP 621 87 to 66
 DP 633 128 7.1.3.4. (b)
 DP 634 iv 3(l) 128 7.1.3.4. (b)
 DP 639 133 7.1.4.5. (b)
 DP 642 134 7.1.4.5. (c)
 DP 642 i 1-3 133 7.1.4.5. (c)
 DP 644 139 note 44
 DP 647 132 7.1.4.4.2.
 DP 652 128 7.1.3.4. (b)
 DP 654 iv 3 132 7.1.4.4.2.
 DP 654 v 5 139 note 44
 DP 654 v 6 139 note 44
 DP 954 iv 2 139 note 44
 Dumuzi's Dream 94, 150 137 note 13
 Durand Catalogue EPHE 1 297 90 to 75
 Durand Catalogue EPHE 235 92 to 87

Ean 2 vii 10ff. 139 note 50
 ECTJ p. 73 100 note 9
 EDPA 47 161 7.4.6.2. (a)
 ED PVA 155ff. 73 to 19
 Edubba B 23
 Edubba B 107 73 to 18
 Edubba B 164 84 to 50
 Edubba B 63 101 note 22
 Edubba C 23
 Edubba D 42 26
 Edubba R 23
 Emar 6/1 286f. 114 7.1.1.3.2. (b)
 Emar 6/2 484f. 114 7.1.1.3.2. (b)
 Emar 6/2 572 ii 12' 102 note 54
 Emar 6/4 69:130',138' 169 7.5.1.7.
 Emar 6/4 153:80'ff. 114 7.1.1.3.2. (b)
 Emar 6/4 542:217'f. 126 7.1.3.3.
 Emar 6/4 545:185' 149 7.3.1.
 Emar 6/4 557:32'ff. 143 7.2.3.1.
 Emar 6/4 580:9'f. 122 7.1.2.2.
 Emar 6/4 580:9' 169 7.5.2.1.
 Enki and Ninhursag 154f. 112 7.1.1.2. (c)
 Enki and the World Order 334 149 7.3.1.
 Enlil A 48 107 note 113
 Enlil A 83 107 note 113
 Ent 35 iv 2ff., vii 5ff. 139 note 50
 Falkenstein Gerichtsurkunden 1 1403 156
 7.4.3.2. (6)
 Falkenstein Gerichtsurkunden 124 107 note
 114
 Falkenstein Gerichtsurkunden 215 91 to 76-78
 FAOS 5/2 p. 338:7' 100 note 14
 Fields of Ninurta 99 note 4
 Fields of Ninurta 136 note 2
 FT pl. xlv 150 7.3.5.
 Gautier Dilbat 15 139 note 46
 Gautier Dilbat 16 139 note 46
 Gautier Dilbat 19 139 note 46
 Gautier Dilbat 20 139 note 46
 Gautier Dilbat 22 139 note 46
 Gautier Dilbat 23 139 note 46
 Gautier Dilbat 30:5 115 7.1.1.3.4.
 Gautier Dilbat 31 139 note 46
 Gilgameš and Enkidu 175 84 to 50
 Gilgameš and Enkidu 253,256,272,274 27 note
 3
 Gilgameš and Huwawa B i 1 105 note 90
 Gilgameš and the Bull iv 18 105 note 90
 Gudea cyl. A iv 24 = v 21 91 to 80
 Gudea cyl. A x 19f. 78 to 33f.
 Gudea cyl. A xi 13ff. 68 to 3
 Gudea cyl. A xx 27 80 to 42
 Gudea St. B v 43 150 7.3.4.
 Gudea St. L ii 5'ff. 147 note 8
 HAV 140 iv r. 2 90 to 75
 Hendursagga Hymn 159 7.4.5.2. (c)
 Hendursagga Hymn 193ff. 97 to 105

The Farmer's Instructions

- HLC 2 pl. 73 iii 7 95 to 99
 HLC 3 149 131 7.1.4.4.1. (b)
 HLC 3 pl. 115 245 iii 5ff. 100 note 11
 HLC 3 391 131 7.1.4.4.1. (b)
 HLC 10 403:7 99 note 8
 HLC 107 211:17 99 note 8
 Hoe and Plow 11 117 7.1.1.4.3. (a) (2)
 Hoe and Plow 70 112 7.1.1.2. (c)
 Hoe and Plow 85f. 57 to 5
 Hoe and Plow 95-99 74 to 25
 Hoe and Plow 103ff. 73 to 20
 Hoe and Plow 168ff. 140 note 64
 Hoe and Plow 177 91 to 80
 Home of the Fish 29 70 to 8
 HSS 3/1 39 168 7.5.1.2. (b) (4)
 HSS 3/1 49 168 7.5.1.2. (b) (5)
 HSS 4/2 27 99 note 5
 HUCA 29 p.88 no. 15:11 70 to 9
 HUCA 29 129 115 7.1.1.4.1.
 Inanna and Ebih 76 78 to 32
 Inanna and Ebih 112-15 27 note 3
 Inanna and Ebih 171 78 to 32
 Inanna's Descent 234 149 7.3.3.
 Inninšagurra 56 169 7.5.1.6.
 Iraq 31 19 r. 3ff. 91 to 80
 ISET 1 13 ii 5f. 78 to 32
 ISET 1 91 177 8.1.2.1.
 ISET 1 97 152 note 3
 ISET 1 130 108 note 136
 ISET 1 136 80 to 43-45
 ISET 2 92 108 note 136
 ISET 2 102 v 8ff. 184 8.1.4.3. to 8
 ISET 2 114 177 8.1.2.1.
 ISET 2 123 177 8.1.2.1.
 ITT 1 1101 91 to 76-78
 ITT 1 1275, p. 17 72 to 16f.
 ITT 2 621 90 to 75
 ITT 2 770 94 to 94
 ITT 2 2730 69 to 4
 ITT 2 2827 91 to 76-78
 ITT 2 2873 124 7.1.2.4.
 ITT 2 3150 124 7.1.2.4.
 ITT 2 3772 147 note 8
 ITT 2 4404 92 to 85-86
 ITT 3 4505 124 7.1.2.4.
 ITT 3 4656 124 7.1.2.4.
 ITT 3 4847 69 to 4
 ITT 3 5060 100 note 11
 ITT 3 5206 156 7.4.3.2. (4)
 ITT 3 5206 157 7.4.4.1.
 ITT 3 5206 164 note 12
 ITT 3 5268 140 note 56
 ITT 3 5395 69 to 4
 ITT 3 5408 149 7.3.3.
 ITT 3 5408 150 7.3.6.
 ITT 3 5452 91 to 76-78
 ITT 3 5559 155 7.4.3.2. (2) (c)
 ITT 3 5559 157 7.4.4.2.
 ITT 3 5559 158 7.4.4.3.
 ITT 3 6074 90 to 75
 ITT 3 6084 140 note 56
 ITT 3 6431 68 to 3
 ITT 4 7085 139 note 40
 ITT 4 7900 154 7.4.3.2. (1) (a)
 ITT 5 6564 121 7.1.2.1.
 ITT 5 6673 94 to 94
 ITT 5 6789:4 57 to 1
 ITT 5 6856 100 note 11
 ITT 5 6864 123 7.1.2.3. (d)
 ITT 5 6864 133 7.1.4.5. (c)
 ITT 5 6864 140 note 60
 ITT 5 6864 140 note 61
 ITT 5 6864 ii 9, iii 5 111 7.1.1.2. (a)
 ITT 5 6864 r. iii 8' 137 note 11
 ITT 5 6878 91 to 76-78
 ITT 5 6879 101 note 24
 ITT 5 6898 93 to 92
 ITT 5 6905:5' 96 to 102
 ITT 5 8216 91 to 76-78
 ITT 5 8216:3' 91 to 76-78
 ITT 5 9272 r. i 4' 72 to 16f.
 ITT 5 9286 93 to 92
 JANES 6 78 95 to 97
 JAOS 52 113 77 to 30-31
 JAOS 52 113 no. 973 181 8.1.3.3. to 4
 JAOS 104:269 78 to 32
 JCS 14 16 128 7.1.3.4. (a)
 JCS 16 14 b 7 88 to 66
 JCS 16 14 126 7.1.3.4. (a)
 JCS 21 283:11ff. 98 to 108
 JCS 24 149 no. 1 147 note 5
 JCS 24 167 83 72 to 16f.
 JCS 24 167 83 101 note 24
 JCS 24 172 ii 6 136 note 8
 JCS 24:172 iii 6 111 7.1.1.2. (b)
 JCS 28 280f.:11f. 54 57 to 1
 JCS 31:17 111 7.1.1.2. (b)
 JCS 31 240 13 96 to 102
 JCS 33:94 105 note 90
 JMEOS 12 3508:2 104 note 73
 JNES 26 207 A r. 1'f. 136 note 2
 JNES 26 207 A r. 1f. 137 note 13
 JNES 43:294 102 note 46
 JSOR 12 27 82 to 46
 JSOR 12 42 no. 30 126 7.1.3.4. (a)
 JSOR 12 42 no. 30 128 7.1.3.4. (a)
 K 1870 6 note 9
 K 1870:14 34 to 1
 K 3587 6 note 9
 K 18450 6 note 9
 KADP 36 i 1-ii 33 108 note 132
 KAR 91:5' 137 note 15
 KAR 375 r. ii 46f. 78 to 32
 Keš Hymn 27 132 7.1.4.4.2.

INDEX: *Texts Quoted*

Ki 1924-1056 80 to 40
 Lahar and Ašnan 50f. 91 to 79
 Lahar and Ašnan 113f. 78 to 32
 Lahar and Ašnan 148 91 to 76-78
 Lahar and Ašnan 197f. 92 to 88f.
 Lament over Sumer and Ur 80b 78 to 32
 Lament over Sumer and Ur 391 175 7.6.2. (9)
 Lanu Fi 13 67 to 2
 LBAT 1577 ii 10f. 96 to 102
 Letter of Lugal-nisag 9 77 to 32
 Lipit-eštar and the Plow 28 81 to 43-45
 Lipit-eštar and the Plow 29 81 to 43-45
 Lipit-eštar and the Plow 35ff. 73 to 20
 Lipit-eštar and the Plow 65 80 to 42
 Lugal 15 92 to 82-83
 Lugal 85 57 to 7
 Lugal 222 67 to 2
 Lugal 333ff. 98 to 108
 Lugal 346 89 to 72
 Lugal 355ff. 98 to 108
 Lugalbanda 1:290 72 to 13
 Lugalbanda 1:491 70 to 8
 Lullaby iii 59 95 to 101
 Lullaby iii 90 105 note 90
 MAD 1 325:6 57 to 1
 MAD 4 41:9 72 to 15
 MAD 4 62:5f. 168 7.5.1.4.
 MAD 5 24 162 7.4.6.2. (c)
 MCS 1:47f. 100 note 16
 MCS 1 54 146 7.2.4.2.
 MCS 2 10f. 126 7.1.3.4. (a)
 MCS 3 85 111 7.1.1.2. (b)
 MCS 3 89 115 7.1.1.4.1.
 MCS 4 10 122 7.1.2.1.
 MCS 4 10 126 7.1.3.4. (a)
 MCS 4 10 139 note 39
 MCS 8 56 139 note 39
 MCS 8 65 155 7.4.3.2. (2) (b)
 MCS 9 276 155 7.4.3.2. (2) (a)
 MDP 2 pl. 21 ii 12 137 note 19
 MDP 6 pl. 10 iv 18 137 note 19
 MDP 18 61 173 7.6.1.
 MDP 27 32 141 7.2.1.2.
 MDP 27:32 142 7.2.2.
 MEE 3 45-46 xii 13' 142 7.2.2.
 MEE 3 147 xii 7' 77 to 32
 MEE 3 pp. 51ff. 147 note 2
 MEE 3 pp. 227ff. 136 note 7
 Mesopotamia 5/6 299ff. 132 7.1.4.4.2.
 MLC 1359 ii 243/57 175 7.6.2. (7)
 MM 393 (MVN 18 325) 173 7.6.1.
 MM 608 (MVN 18 415) i' 4f. 121 7.1.2.1.
 MM 618 (MVN 18 424) 90 to 75
 MM 621 (MVN 18 427) 93 to 92
 MM 710 (MVN 18 515) r. 4' 90 to 75
 MTBM 122 99 note 8
 MTBM 143:7 99 note 8

MVN 1 105 156 7.4.3.2. (7)
 MVN 1 105 156 7.4.4.1.
 MVN 1 106 iii 12 90 to 75
 MVN 1 86 103 note 58
 MVN 1 86 68 to 4
 MVN 1 86 82 to 46
 MVN 1 88:8 115 7.1.1.4.1.
 MVN 3 17 ii 2 78 to 32
 MVN 3 79 90 to 75
 MVN 3 115 158 7.4.4.3.
 MVN 3 115 = Amherst 3 155 7.4.3.2. (2) (a)
 MVN 3 223 111 7.1.1.2. (b)
 MVN 3 224:2,8 99 note 3
 MVN 3 241 93 to 92
 MVN 3 252 93 to 92
 MVN 3 260 93 to 92
 MVN 4 20 95 to 96
 MVN 4 23 88 to 67f.
 MVN 4 67 154 7.4.3.2. (1) (a)
 MVN 6 139 121 7.1.1.4.3. (i) (1)
 MVN 6 139 135 7.1.5.
 MVN 7 108 96 to 102
 MVN 7 299 = ITT 4 7900 154 7.4.3.2. (1) (a)
 MVN 7 387 91 to 80
 MVN 7 402 91 to 80
 MVN 9 10 98 to 105
 MVN 9 10:4 96 to 102
 MVN 9 60 155 7.4.3.2. (1) (c)
 MVN 9 93 155 7.4.3.2. (2) (b)
 MVN 9 107 111 7.1.1.2. (b)
 MVN 9 107 121 7.1.2.1.
 MVN 9 107:6f. 124 7.1.2.3. (e)
 MVN 9 145 98 to 105
 MVN 9 145:2,13 96 to 102
 MVN 9 183:9 154 7.4.3.2. (1) (a)
 MVN 10 11 20 ff. 90 to 75
 MVN 10 102 121 7.1.2.1.
 MVN 10 102 133 7.1.4.5. (c)
 MVN 10 105 111 7.1.1.2. (b)
 MVN 10 105 115 7.1.1.4.1.
 MVN 10 105 136 note 8
 MVN 10 152 69 to 4
 MVN 10 202 iv 25ff. 124 7.1.2.3. (e)
 MVN 10 230 i 16 90 to 75
 MVN 10 230 iii 23 105 note 90
 MVN 10 231 133 7.1.4.5. (c)
 MVN 10 231 = RA 73 31 no. 31 116 7.1.1.4.3. (a)
 MVN 10 231 i 11ff. 115 7.1.1.3.4.
 MVN 10 231 i 8ff. 123 7.1.2.3. (b)
 MVN 11 p. 39:88 106 note 112
 MVN 11 50 111 7.1.1.2. (b)
 MVN 11 60 74 to 23
 MVN 11 63:4f. 155 7.4.3.2. (2) (b)
 MVN 11 74 155 7.4.3.2. (2) (c)
 MVN 12 182 154 7.4.3.2. (1) (a)
 MVN 12 209 98 to 105

The Farmer's Instructions

- MVN 12 267 98 to 105
 MVN 12 320 155 7.4.3.2. (2) (c)
 MVN 12 320 156 7.4.3.2. (7)
 MVN 12 320 157 7.4.4.2.
 MVN 12 388 98 to 105
 MVN 12 469 106 note 110
 MVN 13 5;7 101 note 24
 MVN 13 307 68 to 4
 MVN 13 310 86 to 60
 MVN 13 362 111 7.1.1.2. (b)
 MVN 13 363 130 7.1.4.3.
 MVN 13 579 156 7.4.3.2. (5)
 MVN 13 666 111 7.1.1.2. (a)
 MVN 14 202 81 to 43-45
 MVN 14 225 133 7.1.4.5. (a)
 (MVN 18 325) MM 393 173 7.6.1.
 (MVN 18 415) MM 608 i' 4'f. 121 7.1.2.1.
 (MVN 18 424) MM 618 90 to 75
 (MVN 18 427) MM 621 93 to 92
 (MVN 18 515) MM 710 r. 4' 90 to 75
 N 100 108 note 131
 N 623 82 to 46
 N 846 182 8.1.4.1.
 N 1455 122 7.1.2.2.
 N 3251 111 7.1.1.2.
 N 3264 177 8.1.2.1.
 N 3266 177 8.1.2.1.
 N 3294 177 8.1.2.1.
 N 3301 177 8.1.2.1.
 N 3303 177 8.1.2.1.
 N 3308 177 8.1.2.1.
 N 3310 177 8.1.2.1.
 N 3754 + N 4229 182 8.1.4.1.
 N 4164 r. 3' 99 note 4
 N 4229 182 8.1.4.1.
 N 4529:1f. 160 7.4.5.2. (g)
 N 6030 141 7.2.1.2.
 N 6509 152 note 3
 Nakahara 38 115 7.1.1.4.1.
 Nakahara 38 136 note 8
 NanŠe Hymn 181 105 note 90
 NATN 40 181 8.1.3.3. to 4
 NATN 61 100 note 11
 NATN 61 111 7.1.1.2. (b)
 NATN 61 124 7.1.2.4.
 NATN 85:11 134 7.1.5.
 NATN 93 181 8.1.3.3. to 4
 NATN 93:5' 101 note 31
 NATN 95 80 to 40
 NATN 104 162 7.4.6.2. (c)
 NATN 174:4 107 note 115
 NATN 245:7 93 to 88f.
 NATN 301 100 note 11
 NATN 372:17ff. 155 7.4.3.2. (3)
 NATN 373 82 to 46
 NATN 381 155 7.4.3.2. (2) (b)
 NATN 381 156 7.4.4.1.
 NATN 447 111 7.1.1.2. (a)
 NATN 447 121 7.1.2.1.
 NATN 478 93 to 88f.
 NATN 497 140 note 54
 NATN 578 161 7.4.6.2. (c)
 NATN 579 80 to 40
 NATN 620 106 note 102
 NATN 620 i 1ff. 90 to 75
 NATN 620 ii 1ff. 91 to 80
 NATN 630 80 to 40
 NATN 728 iii 4' 96 to 102
 NATN 739 106 note 102
 NATN 739 ii 5 93 to 88f.
 NATN 739 iii 4'f. 90 to 76-78
 NATN 739 iii 4ff. 91 to 80
 NATN 739 iv 1 106 note 102
 NATN 747 122 7.1.2.3. (a)
 NATN 798 82 to 46
 NATN 815 80 to 40
 NATN 837 78 to 32
 NATN 988 143 7.2.3.1.
 ND 5474:5ff. 73 to 19
 Nebraska 68:26ff. 115 7.1.1.4.1.
 Ni 2796 9 177 8.1.2.1.
 Ni 4117 152 note 3
 Ni 9628 i 24' 136 note 2
 Ni 9658 108 note 136
 Ni 9701 177 8.1.2.1.
 Ni 9818 108 note 136
 Ni 9892 80 to 43-45
 Ni 13163 182 8.1.4.1.
 Ni 13193 ii 6' 100 note 18
 Ni 13225 iii 7'ff. 182 8.1.4.1.
 Nidaba Hymn 95 97 to 105
 Nikolski 1 35 iii 1f. 167 7.5.1.2. (a)
 Nikolski 1 39 vi 6 95 to 96
 Nikolski 1 46 i 4 174 7.6.2. (1)
 Nikolski 1 69 ii 4 167 7.5.1.2. (b) (1)
 Nikolski 1 74 i 4, ii 3 167 7.5.1.2. (b) (1)
 Nikolski 1 74 v 2 167 7.5.1.2. (b) (2)
 Nikolski 1 75 i 2 167 7.5.1.2. (b) (2)
 Nikolski 1 78 i 2 168 7.5.1.2. (b) (3)
 Nikolski 1 88 90 to 75
 Nikolski 1 90 i 2 168 7.5.1.2. (b) (3)
 Nikolski 1 284 iii 3 69 to 4
 Nikolski 1 288 168 7.5.1.2. (b) (5)
 Nikolski 2 42 164 note 4
 Nikolski 2 70 155 7.4.3.2. (2) (a)
 Nikolski 2 97 95 to 96
 Nikolski 2 104 111 7.1.1.2. (b)
 Nikolski 2 104 132 7.1.4.4.2.
 Nikolski 2 111 121 7.1.2.1.
 Nikolski 2 113 130 7.1.4.3.
 Nikolski 2 136 115 7.1.1.4.1.
 Nikolski 2 139 115 7.1.1.4.1.
 Nikolski 2 139 136 note 8
 Nikolski 2 140 95 to 96

INDEX: *Texts Quoted*

Nikolski 2 140:13 95 to 102
 Nikolski 2 162 126 7.1.3.4. (a)
 Nikolski 2 162 128 7.1.3.4. (a)
 Nikolski 2 165:6ff. 111 7.1.1.2. (a)
 Nikolski 2 212 124 7.1.2.3. (e)
 Nikolski 2 213 124 7.1.2.3. (e)
 Nikolski 2 238 86 to 55-56
 Nikolski 2 267 98 to 105
 Nikolski 2 322 92 to 87
 Nikolski 2 430 168 7.5.1.5.
 NRVN 3:1 107 note 115
 NRVN 67 102 note 41
 NRVN 178 96 to 102
 NRVN 238 140 note 54
 NRVN 238:2,8 107 note 115
 NRVN 253 100 note 11
 NRVN 265 124 7.1.2.4.
 NRVN 270 90 to 75
 Nungal 7 139 note 48
 Nungal 11 139 note 48
 Nungal 24 78 to 33f.
 Nungal 60 139 note 48
 OAIC 33:17,31 95 to 97
 OBGT III 20 105 note 89
 OBGT III 21 89 to 74
 OECT 1 pl. 32ff. 4
 OECT 5 35 r. 15 159 7.4.5.2. (d)
 OIP 2 115 viii 47 130 7.1.4.3.
 OIP 14 163 155 7.4.3.2. (2) (a)
 OIP 99 255 viii 9f. 158 7.4.5.1. (b)
 OIP 99 278 165 note 17
 OIP 99 278 iii' 14 165 note 16
 OIP 99 278 iv 15 158 7.4.5.1. (a)
 OIP 99 p. 49:92-97 73 to 19
 OIP 99 p. 50:125 103 note 69
 OLP 1 40 100 note 11
 OLP 8 15 no. 11 155 7.4.3.2. (1) (d)
 Or 2 (1920) 60f. 144 7.2.3.2.2. (1)
 Or 16 (1925) 3 81 to 43-45
 Or 17 11 174 7.6.2. (1)
 Or 17 17 174 7.6.2. (1)
 Or 36 117:26-34 108 note 137
 Or 36 118:37 79 to 38
 Or 47-49 49 90 to 75
 Or 47-49 130 90 to 75
 Or 47-49 213 68 to 4
 Or 47-49 230 115 7.1.1.4.1.
 Or 47-49 239 132 7.1.4.4.2.
 Or 47-49 250 128 7.1.3.4. (a)
 Or 47-49 250 130 7.1.4.1.
 Or 47-49 250 132 7.1.4.4.2.
 Or 47-49 250 138 note 37
 Or 47-49 252 132 7.1.4.4.2.
 Or 47-49 268 74 to 20
 Or 47-49 268 77 to 32
 Or 47-49 346 122 7.1.2.1.
 Or 47-49 349 115 7.1.1.4.1.

Or 47-49 349 136 note 8
 Or 47-49 376 143 7.2.3.1.
 Or 47-49 390 92 to 87
 Or 47-49 511 119 7.1.1.4.3. (d)
 Or 47-49 511 121 7.1.2.1.
 Or 47-49 511 140 note 60
 Or 47-49 511:7 125 7.1.3.2.
 Or 47-49 511:8ff. 134 7.1.4.5. (c)
 Or 54:121 104 note 83
 Or NS 42 512:3 129 7.1.3.4. (d)
 Orient 16 75 107 150 7.3.4.
 OSP 1 91 168 7.5.1.4.
 PBS 1/2 28:2 122 7.1.2.2.
 PBS 5 1 ii 98 160 7.4.5.2. (f)
 PBS 8/1 63 168 7.5.1.6.
 PBS 8/2 134 82 to 46
 PBS 10/2 14:13 138 note 36
 PBS 11/1 41 iii 6 67 to 1
 PBS 11/1 p. 55 no. 65 181 8.1.3.3. to 7
 PBS 11/1 p. 64 no. 279 181 8.1.3.3. to 7
 PBS 11/2 63:1'ff. 149 7.3.1.
 PBS 12 52 iv 10 57 to 7
 PBS 13 22 160 7.4.5.2. (e)
 PBS 13 48 177 8.1.2.1.
 PBS 15 82 178 8.1.2.3.
 PIOL 19 201 126 7.1.3.4. (a)
 Practical Vocabulary Assur 327 145 7.2.4.1.
 Proverb 2.65 147 note 13
 Proverb 2.144 93 to 90
 Proverb 3.154 86 to 60
 Proverb 3.170 159 7.4.5.2. (d)
 Proverb 3.170 165 note 21
 PVA 155ff. 73 to 19
 RA 10 pl. 1 154 7.4.3.2. (1) (a)
 RA 12 20 no. 5 90 to 75
 RA 13 29:28f. 100 note 11
 RA 14 163 95 to 96
 RA 18 65 viii 2'f. 142 7.2.2.
 RA 18 65 x 5 101 note 19
 RA 25 45 170 7.5.2.2. (b)
 RA 25 20 i 1 132 7.1.4.4.2.
 RA 25 20f. iv 5 132 7.1.4.4.2.
 RA 33 104:29f. 102 note 51
 RA 34 42 98 to 108
 RA 34 76 95 to 96
 RA 42 73:11 107 note 123
 RA 73 31 no. 31 116 7.1.1.4.3. (a)
 RB 86 241 93 to 92
 RB 86:241:22 80 to 43-45
 RIAA 255 129 7.1.3.4. (c)
 RIAA 255 139 note 46
 Riftin 44 139 note 46
 Rs 16:4 105 note 90
 Rs 27:36 140 note 63
 Rs 27:40 112 7.1.1.2. (c)
 RTC 74 168 7.5.1.2. (b) (4)
 RTC 74 iv 3 94 to 94

The Farmer's Instructions

- RTC 151 109 7.1.1.1.1.
 RTC 158 109 7.1.1.1.1.
 RTC 239 93 to 92
 RTC 402:36 100 note 11
 RTC 405 91 to 80
 RTC 411:12f. 140 note 56
 RTC 412 118 7.1.1.4.3. (c)
 RTC 412 124 7.1.2.4.
 RTC 413 124 7.1.2.4.
 RTC 419:2,12 72 to 13
 SACT 2 2 111 7.1.1.2. (a)
 SACT 2 2:6 139 note 39
 SACT 2 3 115 7.1.1.4.1.
 SACT 2 4 115 7.1.1.4.1.
 SACT 2 5 115 7.1.1.4.1.
 SACT 2 6 136 note 8
 SACT 2 9 115 7.1.1.4.1.
 SACT 2 15 130 7.1.4.3.
 SACT 2 17 88 to 67f.
 SACT 2 20 103 note 72
 SACT 2 23 126 7.1.3.4. (a)
 SACT 2 24 111 7.1.1.2. (a)
 SACT 2 28 90 to 75
 SACT 2 53 93 to 92
 SACT 2 114 130 7.1.4.3.
 SACT 2 140 121 7.1.1.4.3. (i) (2)
 SACT 2 140 131 7.1.4.4.1. (a)
 SACT 2 233 92 to 87
 SACT 2 297 92 to 87
 SAKF 7 36 147 note 8
 SAKF 7 42 126 7.1.3.4. (a)
 SAKF 7/8 29 139 note 49
 SAKF 7/8 41 130 7.1.4.3.
 SAKF 18 95 to 99
 SAKF 95 82 to 46
 SEM 47 108 note 136
 SEM 74:11 182 8.1.3.3. to 8
 SET 130:478f. 147 note 8
 SET 166:3 95 to 102
 SET 181 105 note 94
 SET 259 138 note 37
 SET 259:4f. 128 7.1.3.4. (a)
 SET 259:9 126 7.1.3.4. (a)
 SET 269 96 to 102
 SET 318 119 7.1.1.4.3. (e)
 SET 318 121 7.1.2.1.
 SET 318 123 7.1.2.3. (c)
 SET 318:3 111 7.1.1.2. (a)
 Si 331:10 34 to 1
 Sid 6 131 7.1.4.4.1.
 Sid 6 131 7.1.4.4.1. (b)
 Sid 6:41 113 7.1.1.3.1.
 Sid 6:42ff. 130 7.1.4.3.
 Silver and Copper B 68f. 78 to 32
 Silver and Copper B 70 to 9
 Silver and Copper B 121 57 to 1
 Silver and Copper C:13f. 79 to 38
 SLFN pl. 26 182 8.1.4.1.
 SLT 11 171 note 3
 SMEA 18 pl. 3:6' 149 7.3.1.
 Song of the Hoe 79 70 to 8
 Song of the Hoe 85 150 7.3.4.
 SpTU 2 51 122 7.1.2.2.
 SpTU 2 51 iii 21 70 to 6
 SpTU 3 114 137 note 14
 SRT 6 iv 7 95 to 96
 SRT 14 105 note 90
 STA 2 iv 12ff. 126 7.1.3.4. (a)
 STA 27 viii and passim 156 7.4.3.2. (7)
 StOr 46 24 iii 39ff. 70 to 8
 STT 70 136 note 5
 STT 199:34ff. 73 to 19
 STT 200:62ff. 73 to 19
 STTI 9 90 to 75
 STTI 36:7' 72 to 16f.
 STTI 36:8 72 to 16f.
 STTI 79 94 to 94
 STTI 94 90 to 75
 STTI 132 90 to 75
 STTI 138 94 to 94
 STTI 156 94 to 94
 STVC 50 r. 10'f. 159 7.4.5.2. (b)
 Šulgi A 39 159 7.4.5.2. (a)
 Šulgi B 143 107 note 113
 Šulgi B 362f. 138 note 36
 Šulgi C 159 7.4.5.2. (b)
 Šulgi G 12 138 note 36
 Šulgi C 7 105 note 90
 Šulgi H 158f. 105 note 90
 Šulgi R 10 80 to 42
 TAD 12 111 7.1.1.2. (b)
 TAD 12 124 7.1.2.4.
 TCL 1 69:35 67 to 1
 TCL 1 174:5 88 to 66
 TCL 2 5565:2 72 to 16f.
 TCL 5 5669 iii 12ff. 143 7.2.3.2.1. (4)
 TCL 5 5674 iii 24 100 note 11
 TCL 5 5674 iii 24, vii 2 100 note 11
 TCL 5 5674 v 15 121 7.1.2.1.
 TCL 5 5674 v 17 126 7.1.3.4. (a)
 TCL 5 5674 vii 26 132 7.1.4.4.2.
 TCL 5 5675 v 5ff. 86 to 55-56
 TCL 5 5675 ix 10ff. 136 note 8
 TCL 5 5675 ix 11f. 130 7.1.4.3.
 TCL 5 5676 vi 11ff. 86 to 55-56
 TCL 5 5676 x 3ff. 111 7.1.1.2. (a)
 TCL 5 6036 vii 31,33 121 7.1.2.1.
 TCL 5 6036 vii 35 121 7.1.2.1.
 TCL 5 6036 vii 40 96 to 104
 TCL 5 6036 xv 13ff. 74 to 21
 TCL 5 6036 xviii 21 105 note 90
 TCL 5 6041 90 to 75
 TCL 5 6048:2, 12 91 to 76-78
 TCL 15 29:9'ff. 97 to 105

INDEX: *Texts Quoted*

TCS 1 121:10 77 to 32
TCS 1 148 99 note 8
TCS 1 154 99 note 8
TCS 1 235 99 note 8
TCS 1 273:6f. 166 note 31
TCS 3 48 152 note 3
TÉL 28 156 7.4.3.2. (3)
TÉL 28 157 7.4.4.1.
TÉL 233 131 7.1.4.4.1. (b)
TÉL 272 121 7.1.2.1.
Temple Hymns 520 149f. 7.3.3.
TENS 4 115 7.1.1.4.1.
TENS 4 136 note 8
TENS 23 137 note 20
TENS 28 121 7.1.2.1.
TENS 28 124 7.1.2.3. (e)
TENS 56 124 7.1.2.3. (e)
TENS 69 136 note 8
TENS 78 124 7.1.2.3. (e)
TENS 81 88 to 67f.
TENS 83 88 to 67f.
TENS 92 111 7.1.1.2. (a)
TENS 92 128 7.1.3.4. (a)
TENS 92:26 126 7.1.3.4. (a)
TENS 113 88 to 67f.
TENS 116 128 7.1.3.4. (a)
TENS 116:14 126 7.1.3.4. (a)
TENS 121 111 7.1.1.2. (b)
TENS 122 111 7.1.1.2. (b)
TENS 144 115 7.1.1.4.1.
TENS 144 136 note 8
TENS 149 128 7.1.3.4. (a)
TENS 149:2 115 7.1.1.3.4.
TENS 149:4 126 7.1.3.4. (a)
TENS 152 136 note 8
TENS 207 111 7.1.1.2. (b)
TENS 207 124 7.1.2.3. (e)
TENS 271 88 to 67f.
TENS 274 132 7.1.4.4.2.
TENS 274 139 note 39
TENS 276 115 7.1.1.4.1.
TENS 392:66 155 7.4.3.2. (1) (c)
TENS 393 154 7.4.3.2. (1) (a)
TENS 393:8f. 139 note 40
TENS 395 154 7.4.3.2. (1) (a)
TENS 459 125 7.1.3.2.
TENS 459 128 7.1.3.4. (a)
TENS 459 138 note 37
TENS 484:9 166 note 33
TIM 6 1 121 7.1.2.1.
TIM 6 1 i 10,12 124 7.1.2.3. (e)
TIM 6 55 144 7.2.3.2.2. (2)
TIM 9 6:22 92 to 81
TIM 9 87:13 154 7.4.2.2. to 10'
TJAMC pl. 53 IOS 43 154 7.4.3.2. (1) (a)
TLB 4 65 79 to 38
TLB 4 68:9 142 7.2.2.

TLB 4 94:15f. 168 7.5.1.6.
TM.75.G.5313 144 7.2.3.4.
TMH 5 66 168 7.5.1.4.
TMH 5 68 168 7.5.1.4.
TMH 5 79 ii 4, iii 6 184 8.1.4.3. to 7
TMH 5 146 69 to 4
TMH 5 146 100 note 9
TMH 5 157 ii 3 92 to 85-86
TMH NF 1-2 64:5 107 note 115
TMH NF 1-2 85:5 107 note 115
TMH NF 1-2 171 91 to 80
TMH NF 1-2 171 106 note 102
TMH NF 1-2 171:9f. 95 to 99
TMH NF 1-2 171:12f. 95f. to 102
TMH NF 1-2 171:14ff. 95 to 102
TMH NF 1-2 171 i 1ff. 91 to 76-78
TMH NF 1-2 171 r. 8' 100 note 11
TMH NF 1-2 171 r. 11' 96 to 104
TMH NF 1-2 175 80 to 40
TMH NF 1-2 291:9 70 to 8
TMH NF 1-2 294:5 67 to 2
TMH NF 1-2 303 75 to 26-28
TMH NF 1-2 303:25 181 8.1.3.3. to 4
TMH NF 1-2 316 155 7.4.3.2. (1) (b)
TMH NF 4 45 182 8.1.4.1.
TMH NF 4 79 108 note 136
Tree and Reed 101 112 7.1.1.2. (c)
Tree and Reed 15 105 note 90
TRU 374 162 7.4.6.2. (c)
TSU 48 98 to 105
TSŠ 294/239 164 note 14
TSŠ 362:2 94 to 94
TSŠ 558:2 94 to 94
TSŠ 60 ii 4 71 to 9
TSŠ 750:2 94 to 94
TSŠ 860 158f. 7.4.5.1.
TSŠ 860:1, 4, 16 155 7.4.3.2. (2) (b)
TŠA 2 iv 15; 21 92 to 80
TŠA 23 128 7.1.3.4. (b)
TŠA 23 x 6ff. 140 note 63
TŠA 23 xii 2 102 note 50
TŠA 27 168 7.5.1.2. (b) (5)
TŠA 31 72 to 15
TŠA lxi 90 to 75
TŠA lxxviii:51 vi 155 7.4.3.2. (1) (c)
TUT 5 143 7.2.3.2.1. (3)
TUT 7 i 7';13';20' 92 to 80
TUT 8 v 1ff. 155 7.4.3.2. (2) (a)
TUT 9 124 7.1.2.3. (e)
TUT 9:9,r.5 137 note 11
TUT 12 68 to 3
TUT 12 v 1 132 7.1.4.4.2.
TUT 114 passim 155 7.4.3.2. (1) (d)
TUT 126 ii 29 105 note 94
TUT 141 140 note 56
TUT 267:9f. 156 7.4.3.2. (3)
TUT 268 154 7.4.3.2. (1) (a)

The Farmer's Instructions

- Two Elegies 53:54 89 to 74
 U 7787a 11
 U 7789bb 11
 U 7790 11
 U 7790 13 note 5
 U 7790-94 11
 U 11482 71 to 9
 U 16833 177 8.1.2.1.
 UCP 9/2 1 8 136 note 8
 UCP 9/2 1 176:8 115 7.1.1.4.1.
 UCP 9/2 2 53 88 to 66
 UCP 9/2 2 92 121 7.1.2.1.
 UCP 9/2 2 92 130 7.1.4.3.
 UDU 22 69 to 4
 UDU 53 121 7.1.2.1.
 UDU 54 121 7.1.2.1.
 UDU 59 121 7.1.2.1.
 UET 1 284 112 7.1.1.2. (c)
 UET 1 284 136 note 6
 UET 3 20 70 to 9
 UET 3 38:1f. 161 7.4.6.2. (c)
 UET 3 272 ii 17' 93 to 92
 UET 3 381 100 note 12
 UET 3 385 112 7.1.1.2. (c)
 UET 3 721:6' 93 to 92
 UET 3 879 155 7.4.3.2. (3)
 UET 3 1086:13 155 7.4.3.2. (1) (b)
 UET 3 1087:9' 154 7.4.3.2. (1) (a)
 UET 3 1109 140 note 54
 UET 3 1114 155 7.4.3.2. (3)
 UET 3 1114 157 7.4.4.1.
 UET 3 1114 164 note 1
 UET 3 1134 106 note 111
 UET 3 1330 93 to 88f.
 UET 3 1330 96 to 102
 UET 3 1346 95 to 96
 UET 3 1349 155 7.4.3.2. (2) (c)
 UET 3 1350 155 7.4.3.2. (2) (c)
 UET 3 1354 155 7.4.3.2. (2) (c)
 UET 3 1355 155 7.4.3.2. (2) (c)
 UET 3 1358 155 7.4.3.2. (2) (c)
 UET 3 1368 140 note 54
 UET 3 1372 68 to 3
 UET 3 1416 132 7.1.4.4.2.
 UET 3 1432 r. 12' 136 note 8
 UET 3 1455 91 to 80
 UET 5 86:22 34 to 1
 UET 5 222 144 7.2.3.3.
 UET 5 259 11
 UET 5 602 161 7.4.6.2. (b)
 UET 5 602 165 note 27
 UET 5 619 161 7.4.6.2. (b)
 UET 5 620 161 7.4.6.2. (b)
 UET 5 621 161 7.4.6.2. (b)
 UET 5 632 161 7.4.6.2. (b)
 UET 5 633 161 7.4.6.2. (b)
 UET 5 722 144 7.2.3.3.
 UET 5 862 177 8.1.2.1.
 UET 6 33 13 note 7
 UET 6 34 13 note 7
 UET 6 35 13 note 7
 UET 6 61 13 note 7
 UET 6 62 13 note 7
 UET 6 66 13 note 7
 UET 6 123:35 34 to 1
 UET 6 123:35 67 to 1
 UET 6 251:7 182 8.1.3.3. to 8
 UET 6 385 r. 1f., 5f. 111 7.1.1.2.
 UET 6 414:12 94 to 94
 UET 7 92 11
 UET 7 100 11
 UET 7 101 11
 UET 7 134 137 note 14
 UET 7 414 13 note 3
 UET 8 86 112 7.1.1.2. (c)
 UET 9 1158 i 3' 156 7.4.3.2. (3)
 Ukg 7 i' 1'ff. 139 note 50
 UM 29-15-384:4'ff. 182 8.1.4.1.
 UM 29-16-139 177 8.1.2.1.
 UM 30-12-280 71 to 9
 UM 30-12-395 71 to 9
 UM 55-21-287 177 8.1.2.1.
 UM 55-21-300 177 8.1.2.1.
 UM 55-21-372 182 8.1.4.1.
 Un 27 112 7.1.1.2. (c)
 Un 27 136 note 6
 Ur Lament 95;118 92 to 81
 Ur-Namma Hymn D 3 179 8.1.2.3. to 3
 Uruk Lament 3.5 78 to 32
 UTI 3 2093 144 7.2.3.2.2. (4)
 UTI 3 2101 144 7.2.3.2.2. (4)
 UTI 3 2285:59ff. 152 note 6
 VAS 2 30 + N 100 + BM 80758 (CT 58 8) 108
 note 131
 VAS 7 38 139 note 46
 VAS 8 121-122 129 7.1.3.4. (c)
 VAS 8 122:7 139 note 45
 VAS 10 118 ii' 2' 152 note 4
 VAS 10 123 iii 13'f. 97 to 105
 VAS 10 179 iii 3' 57 to 1
 VAS 10 197 iii 2' 95 to 96
 VAS 10 197 108 note 136
 VAS 13 69 97 to 105
 VAS 14 30 140 note 63
 VAS 14 40 viii 94 to 94
 VAS 14 57 ii 5 81 to 43-45
 VAS 14 100 iii 2 139 note 39
 VAS 14 130 i 1 139 note 44
 VAS 14 157 iii 4 77 to 32
 VAS 14 184 76 to 29
 VAS 14 187 = AWL 3 130 7.1.4.1.
 VAS 16 129:17 74 to 22
 VAS 16 179 88 to 66
 VAS 24 49 104 note 78

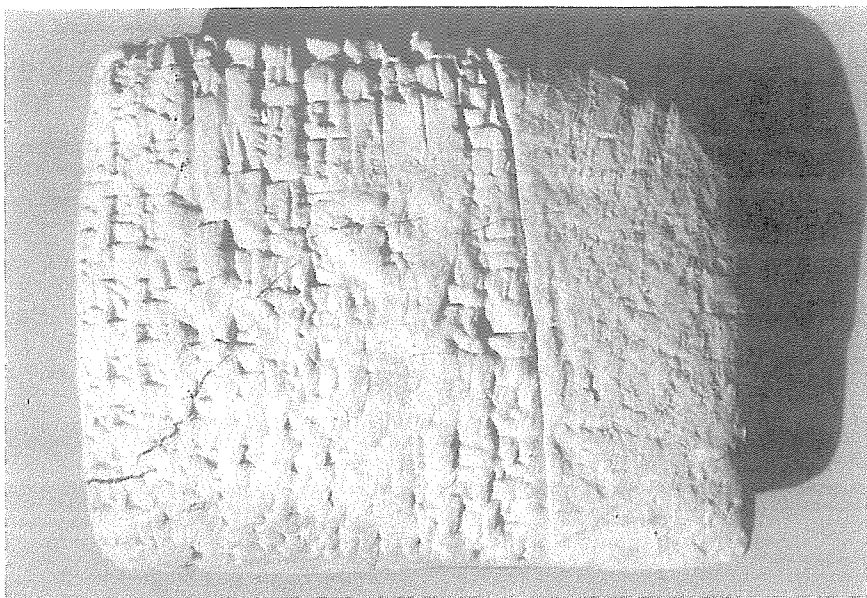
INDEX: *Texts Quoted*

VAS 24 50 104 note 78
 VAT 4656 174 7.6.2. (1)
 VAT 4733 174 7.6.2. (1)
 VAT 4734 iii 8 80 to 43-45
 VAT 4778 iii 1 80 to 43-45
 VAT 9430 137 note 14
 VAT 23284 137 note 14
 VE 22 166 note 33
 VE 097 69 to 4
 VE 125 93 to 90
 VE 235 154 7.4.2.2. to 12'
 VE 1295 168 7.5.1.3.
 W 22729/4 122 7.1.2.2.
 Wengler 49 144 7.2.3.2.2. (1)
 Winter and Summer 62 91 to 80
 Winter and Summer 180 79 to 35-37
 Winter and Summer 181 84 to 52-53
 Winter and Summer 277 79 to 35-37
 WVDOG 43 26 164 note 14
 WVDOG 43 43 xii 6 142 7.2.2.
 WVDOG 43 64 171 note 3
 WVDOG 45 xii 3 79 to 35-37
 YBC 4679 vi 7ff. 141 7.2.1.2.
 YBC 7175 177 8.1.2.1.
 YNER 4 36:6 179 8.1.2.3. to 5
 YNER 4 no. 50 144 7.2.3.3.
 YOS 2 4:11 168 7.5.1.6.
 YOS 2 130:15 122 7.1.2.2.
 YOS 2 151:17 77 to 32
 YOS 4 1 158 7.4.4.3.
 YOS 4 1:1ff. 156 7.4.3.2. (6)
 YOS 4 70 155 7.4.3.2. (2) (b)
 YOS 4 70 156 7.4.4.1.
 YOS 4 209 125 7.1.3.2.
 YOS 4 209 126 7.1.3.4. (a)
 YOS 4 209 130 7.1.4.1.
 YOS 4 209 130 7.1.4.2.
 YOS 4 209 132 7.1.4.4.2.
 YOS 4 209 133 7.1.4.5. (c)
 YOS 4 209 134 7.1.4.5. (c)
 YOS 4 210 86 to 55-56
 YOS 4 235 68 to 3
 YOS 4 246 150 7.3.4.
 YOS 4 246 150 7.3.6.
 YOS 4 267 152 note 6
 YOS 4 288 77 to 30-31
 YOS 4 288 167 7.5.1.1.
 YOS 4 298:33 96 to 102
 YOS 4 307 156 7.4.3.2. (4)
 YOS 4 307 157 7.4.4.1.
 YOS 4 311 98 to 105
 YOS 5 164 75 to 26-28
 YOS 10 46 iv 46 134 7.1.4.5. (e)
 YOS 11 69:2-5 87 to 64f.
 YOS 11 95:1 140 note 62
 YOS 12 179:2,6,10 168 7.5.1.6.
 YOS 12 376 97 to 105
 YOS 13 470 129 7.1.3.4. (c)
 ZA 53:82 no. 21 107 note 115
 ZA 64 144:35 89 to 74
 ZA 65 (1975) 192:141 57 to 7
 ZA 70:55ff. 78 to 32

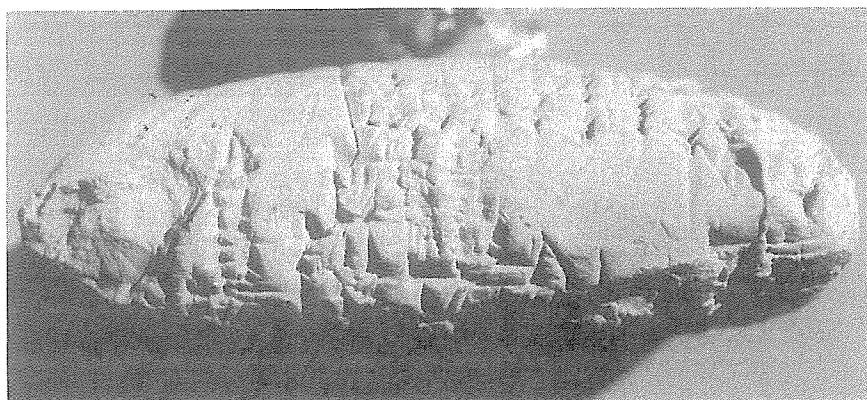
Index of Museum Numbers of Oriental Institute Tablets (in 8.2)

162	4.1	2763	6.4	4270	2.3
1153	4.3	2775	8.2.3	4408	3.16
1157	8.1.1	2843	5.4	4503	3.11
1178	5.15	2845	5.2	4578	7.11
2469	2.12	2854	1.3.1	4651	3.6
2536	3.12	2871	5.3	4699	1.4.1
2536	3.14	2893	7.5	4965	7.12
2542	8.3.1	2894	7.4	4990	3.15
2545	1.2.2	2902	7.2	5151	3.9
2557	5.13	2963	3.4	5160	3.8
2559	2.11	2975	2.1	5328	7.6
2565	3.7	2981	3.10	5701	8.5.1
2568	2.9	2991	7.9	5832	8.3.2
2581	1.1.1	3005	7.3	5835	3.12
2593	6.3	3017	2.7	5920	3.17
2619	1.2.1	3109	2.2	5923	1.1.3
2639	8.4.1	3125	2.4	5944	7.10
2644	2.10	3126	7.8	5948	5.12
2663	5.5	3137	3.3	5975	3.2
2669	5.9	3219	3.1	5992	2.8
2675	5.11	3305	2.6	22183	3.5
2703	5.10	3325	5.6	22190	1.3.2
2709	8.2.2	3346	7.1	26318	6.1
2711	5.8	3354	8.2.1	26321	6.2
2720	5.14	3378	5.1	26328	1.1.2
2731	3.13	4194	4.2	26331	7.7
2755	1.4.2	4199	5.7	26337	1.3.3
2756	2.5	4199	5.7		

Plates



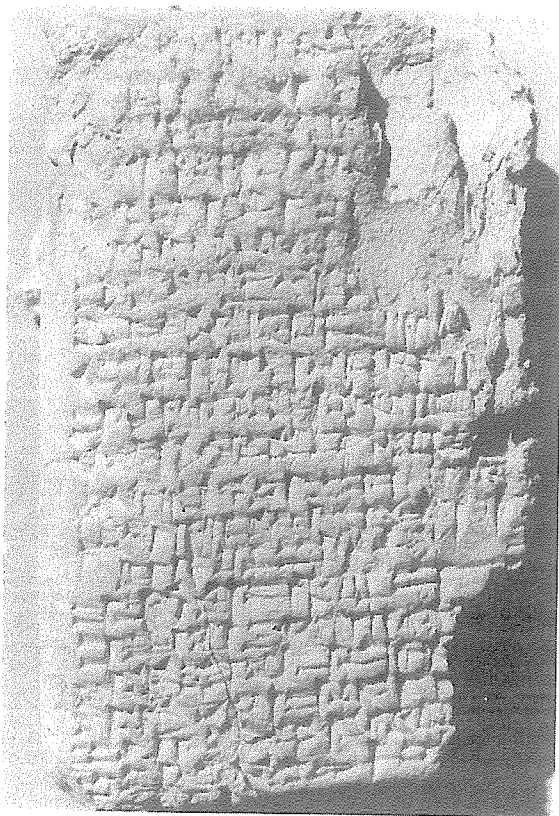
CBS 15152 rev. (A)



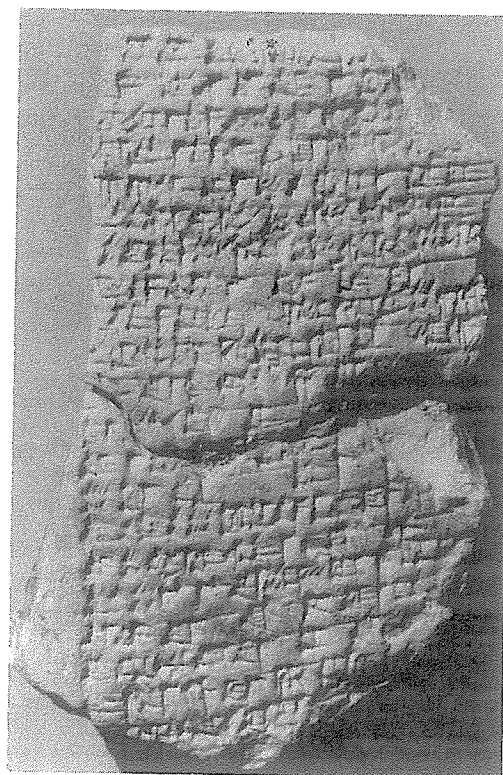
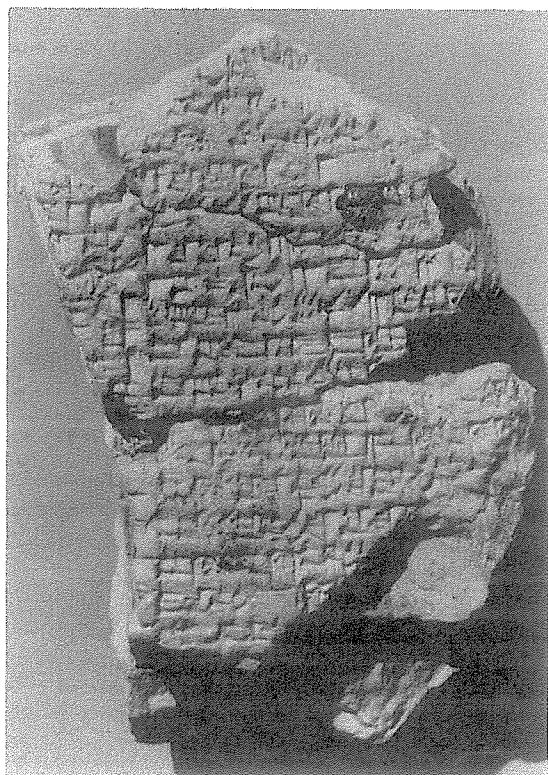
CBS 15152 obv. (A)



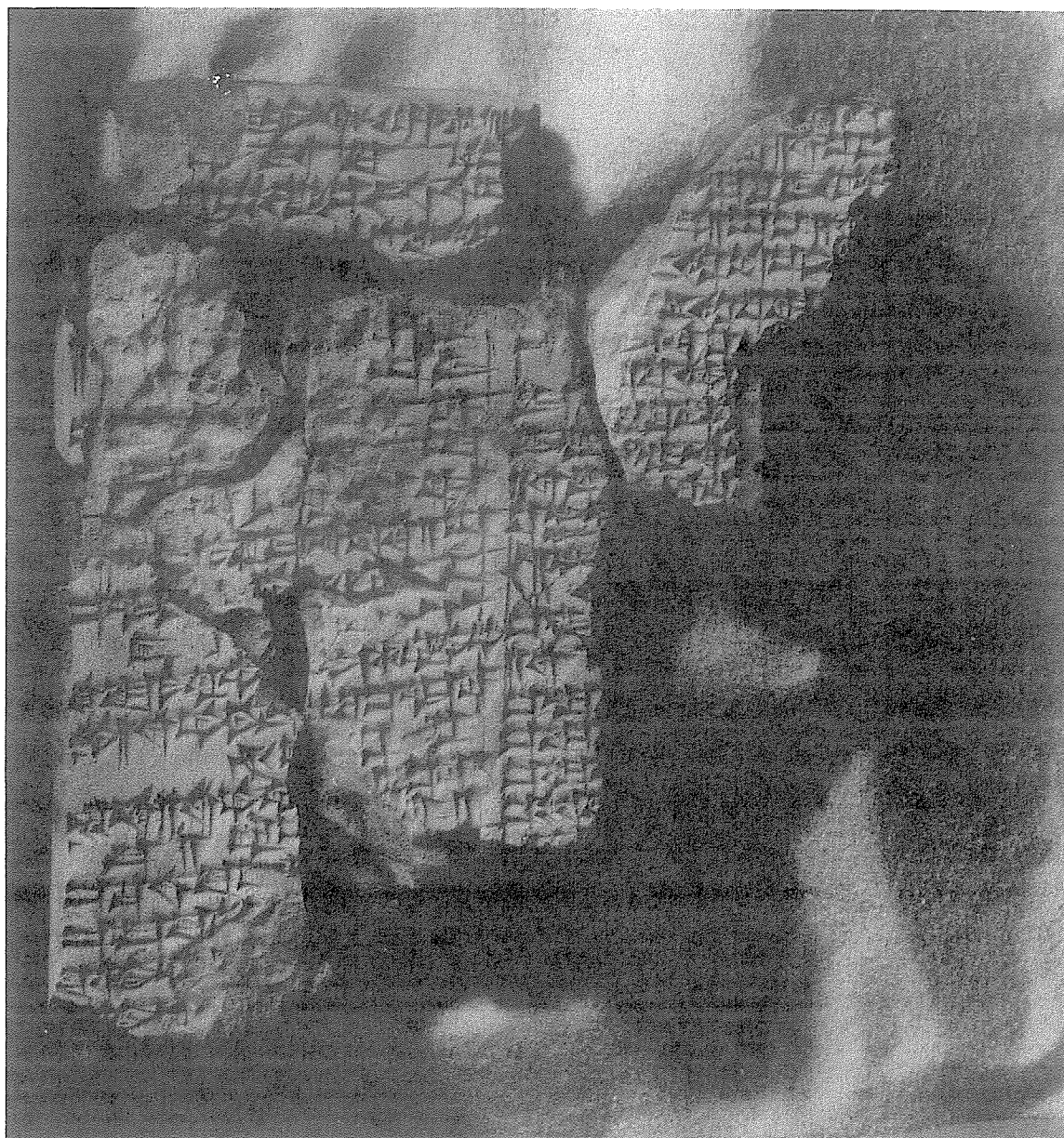
Plate II



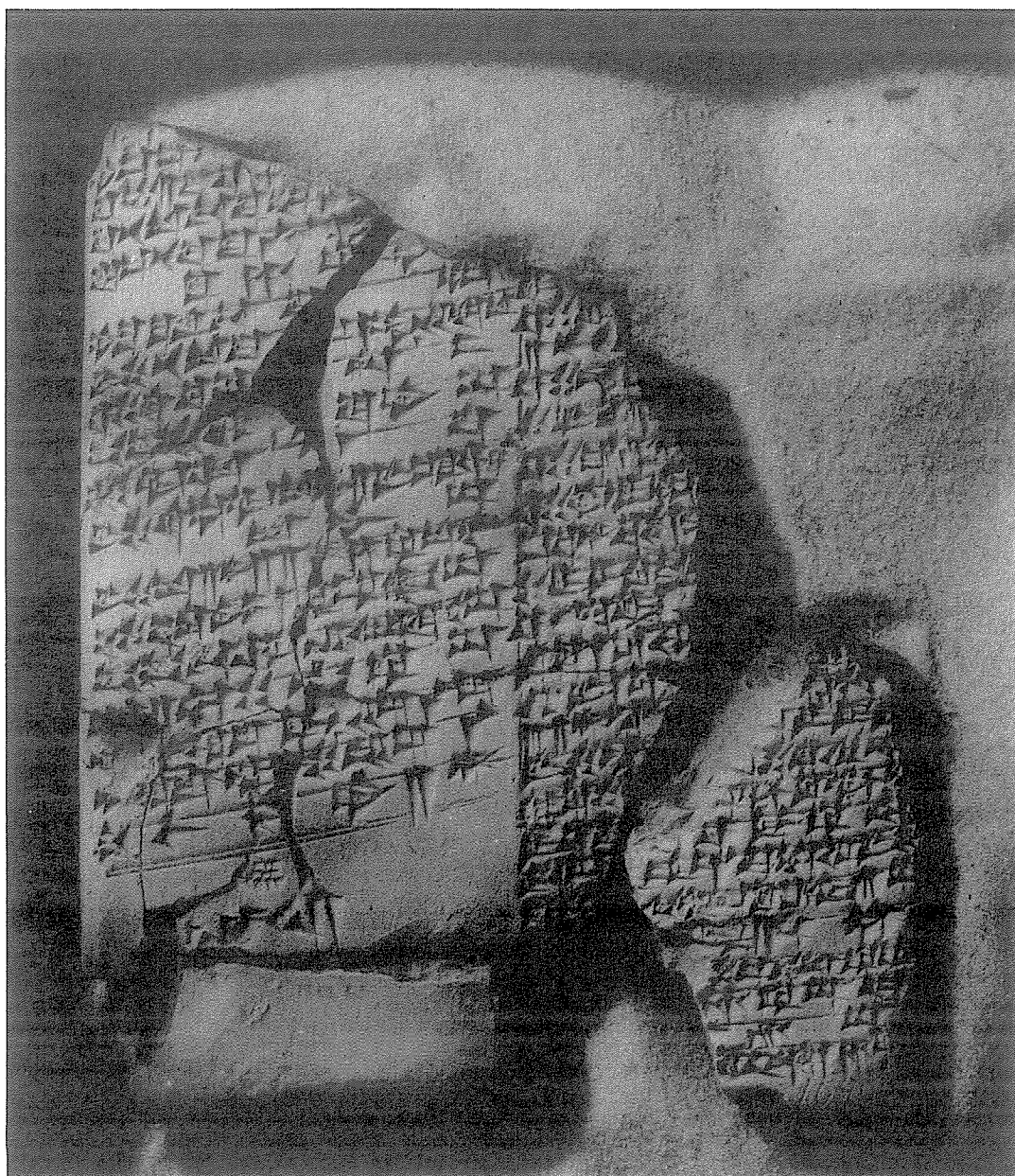
CBS 14024 (B)

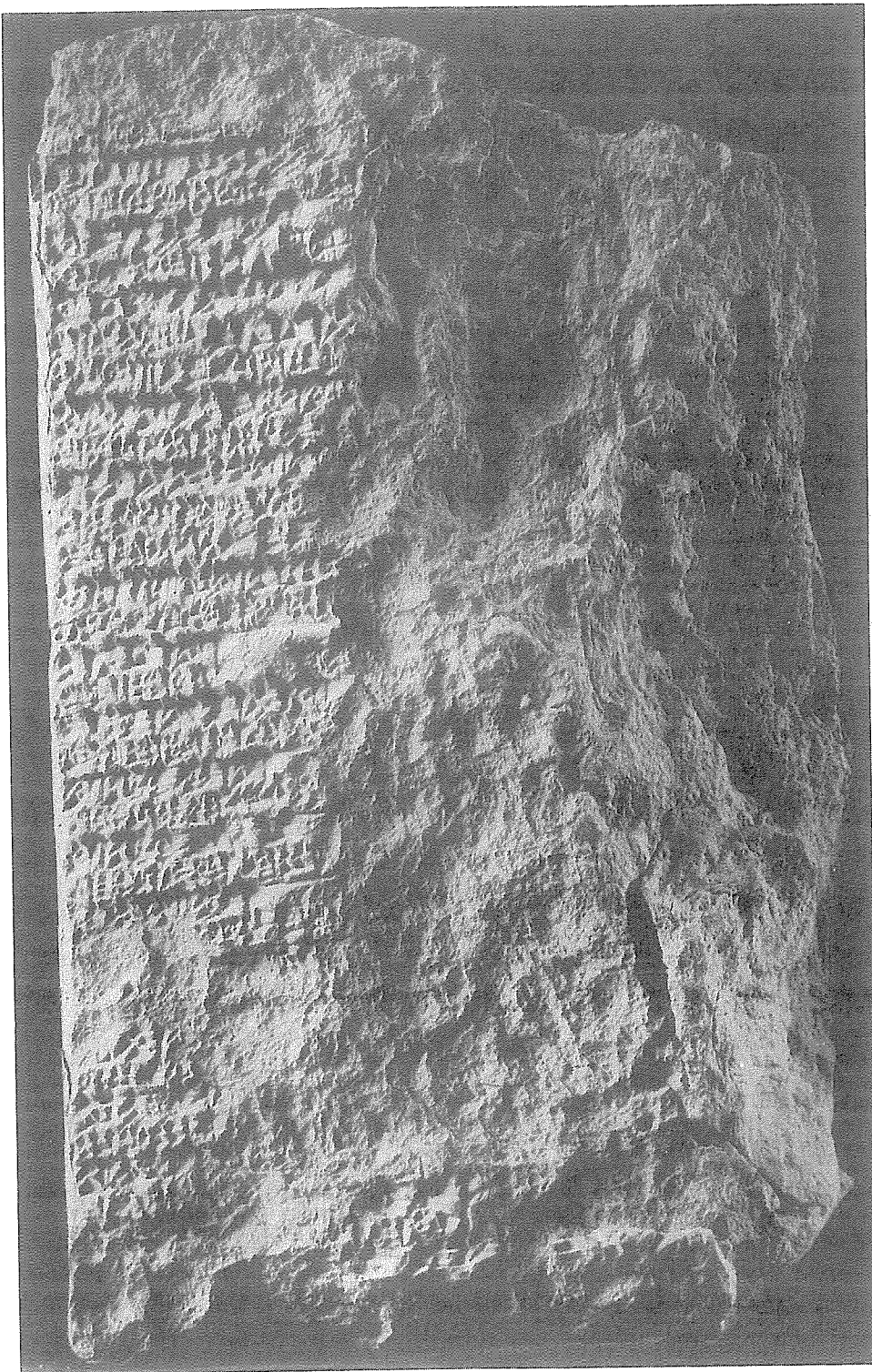


UM 29-13-922 (F)

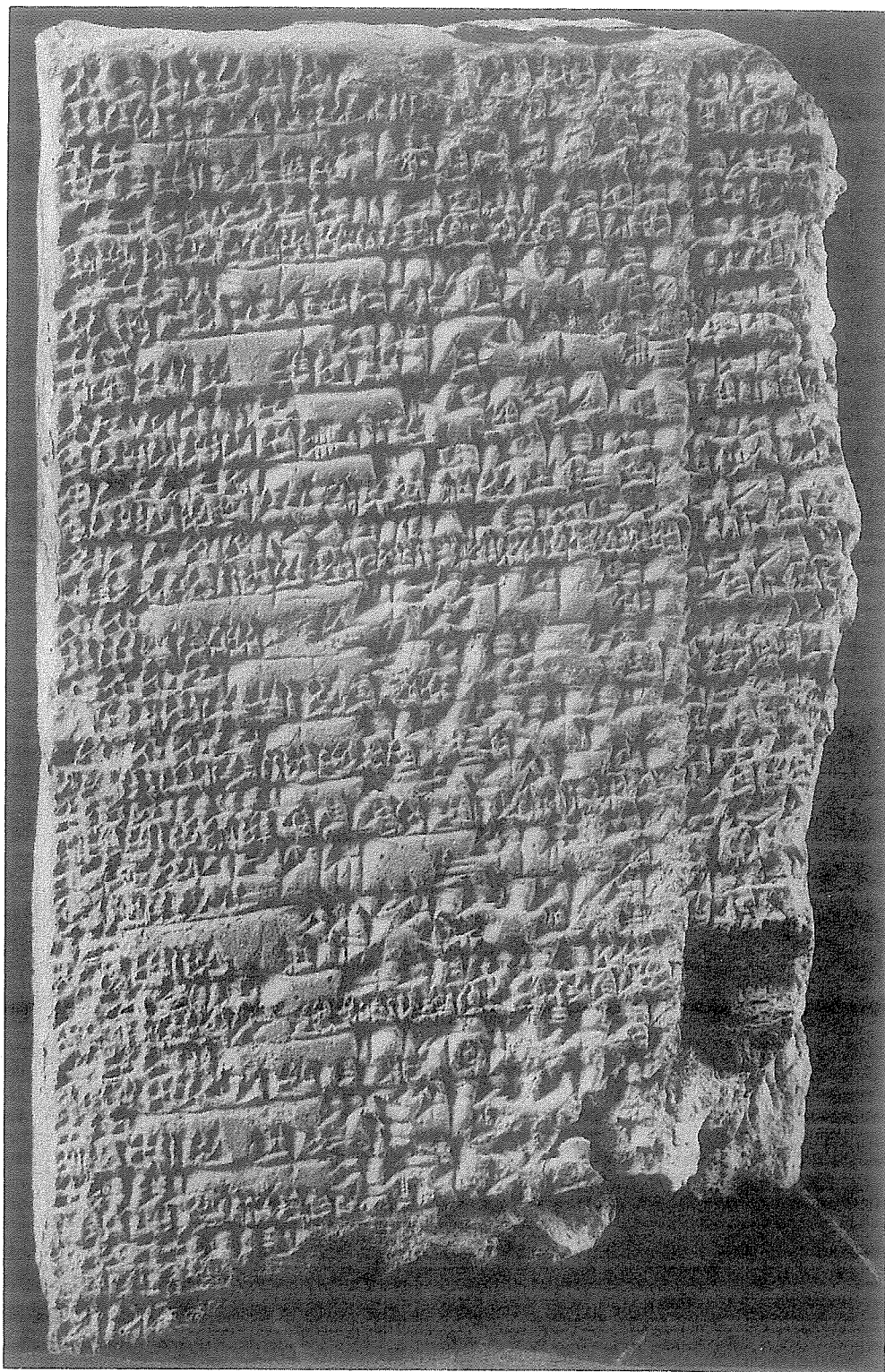


CBS 10403+ obv. (E)

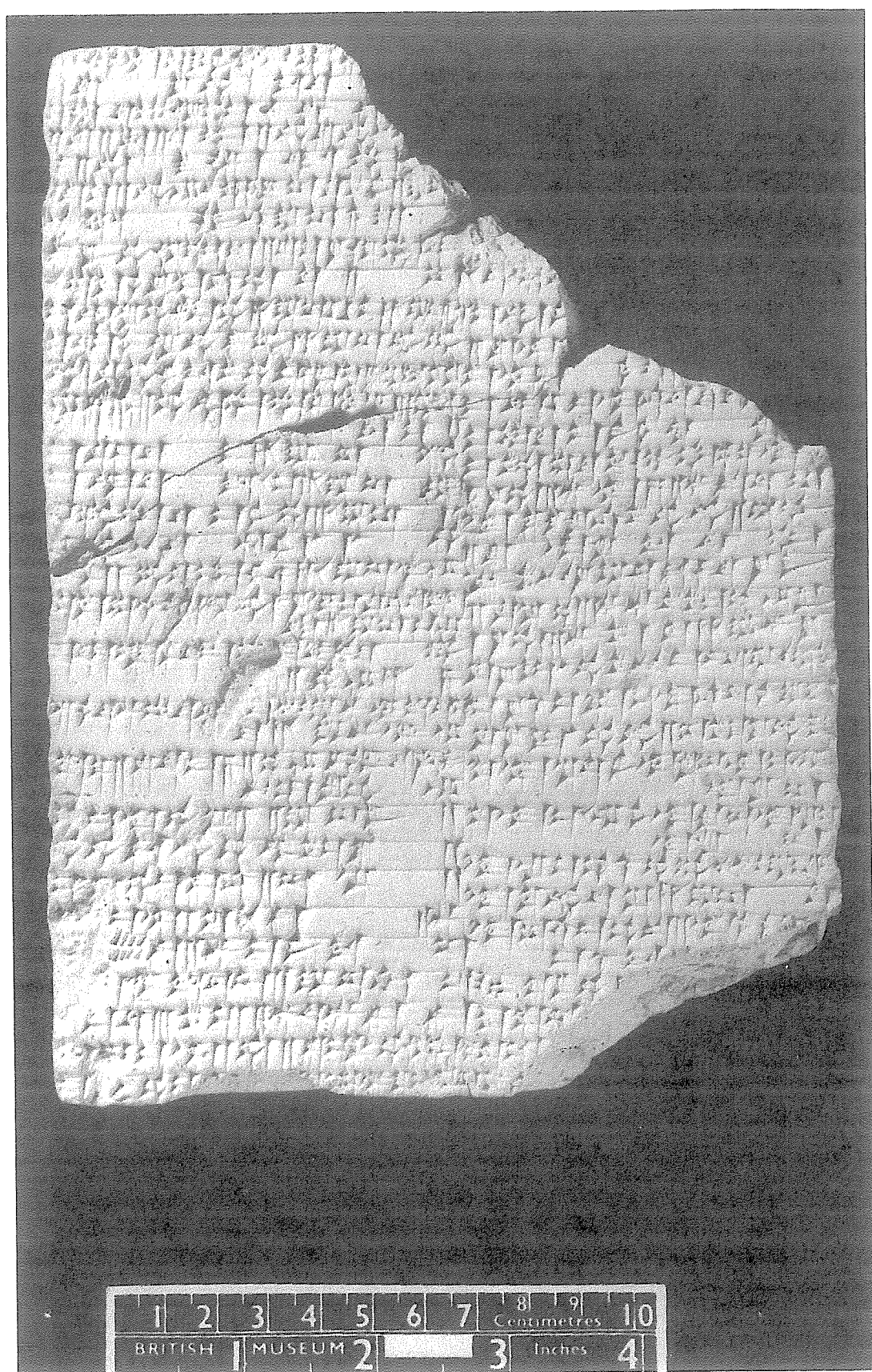




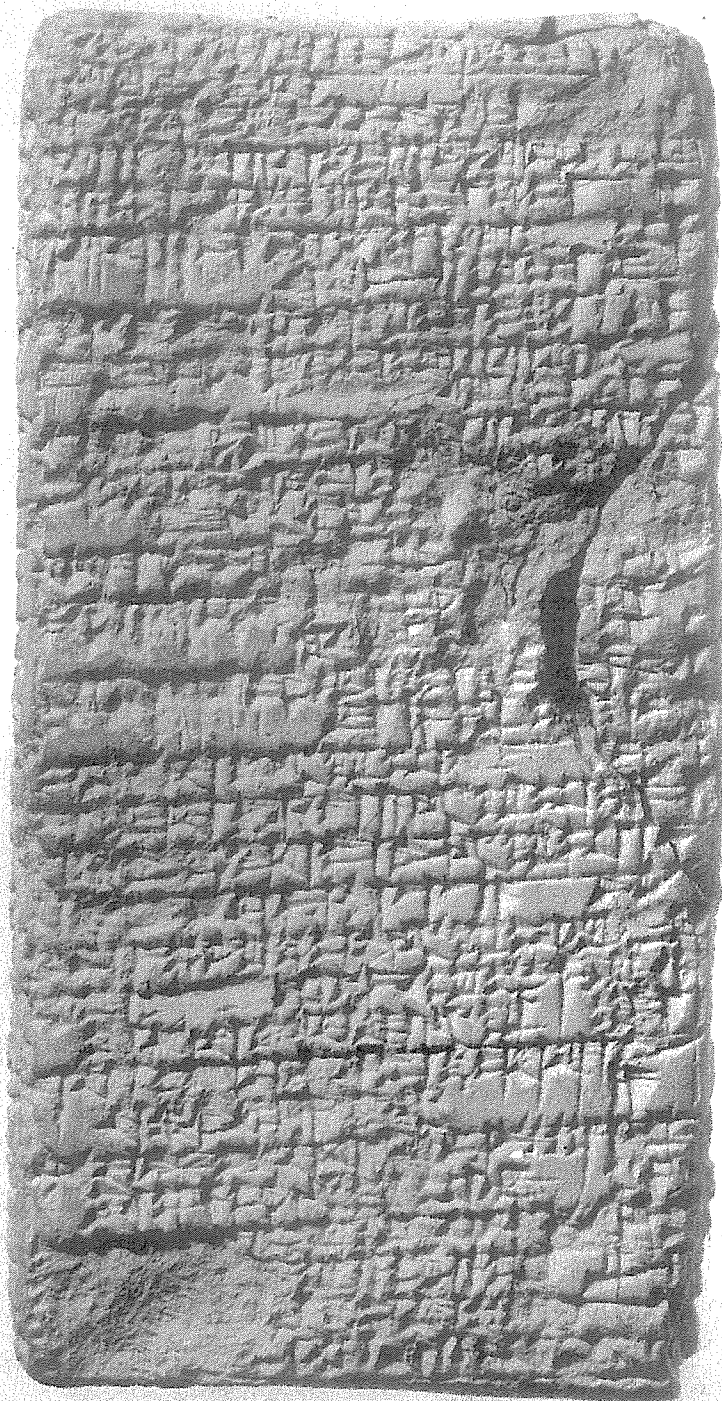
CBS 1354 obv.



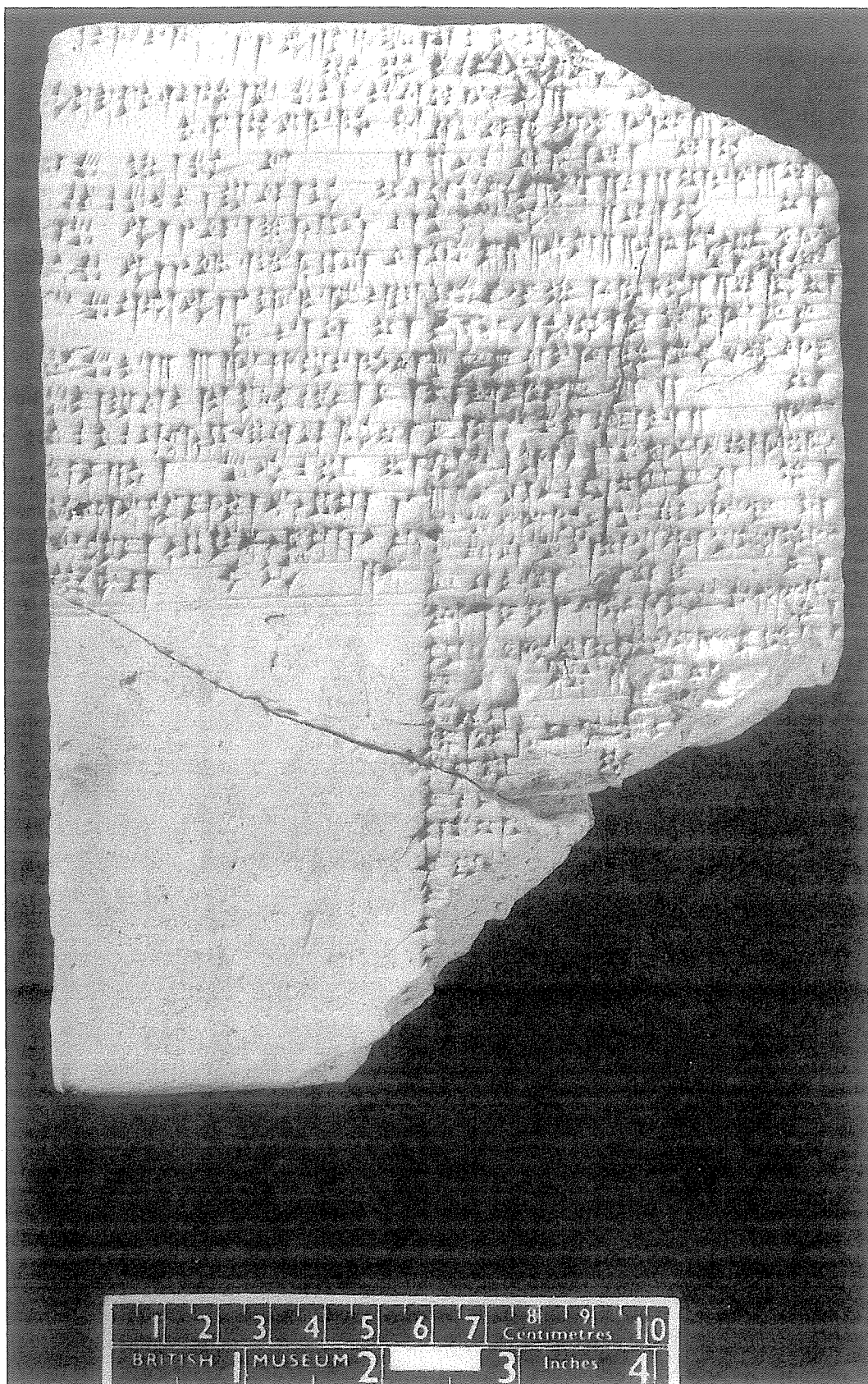
CBS 1354 rev.



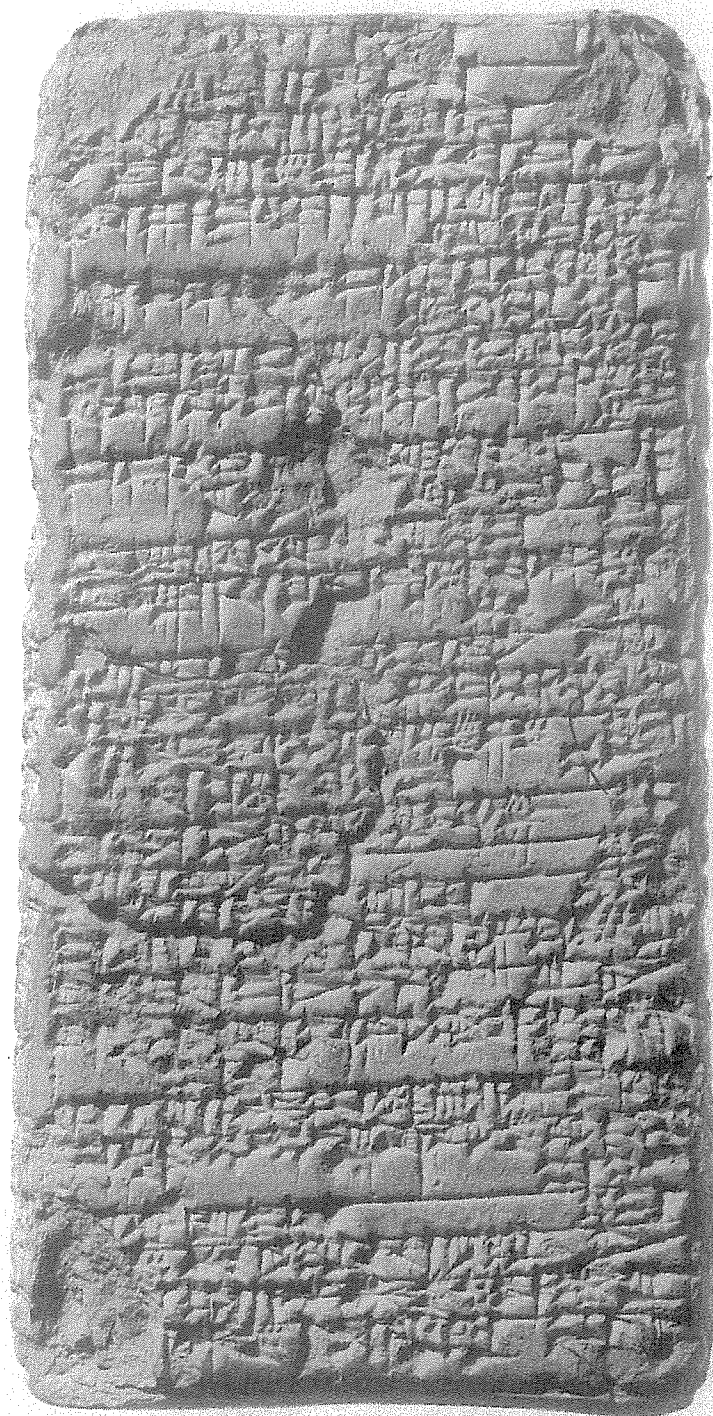
UET 6 172 obv. (A₂)



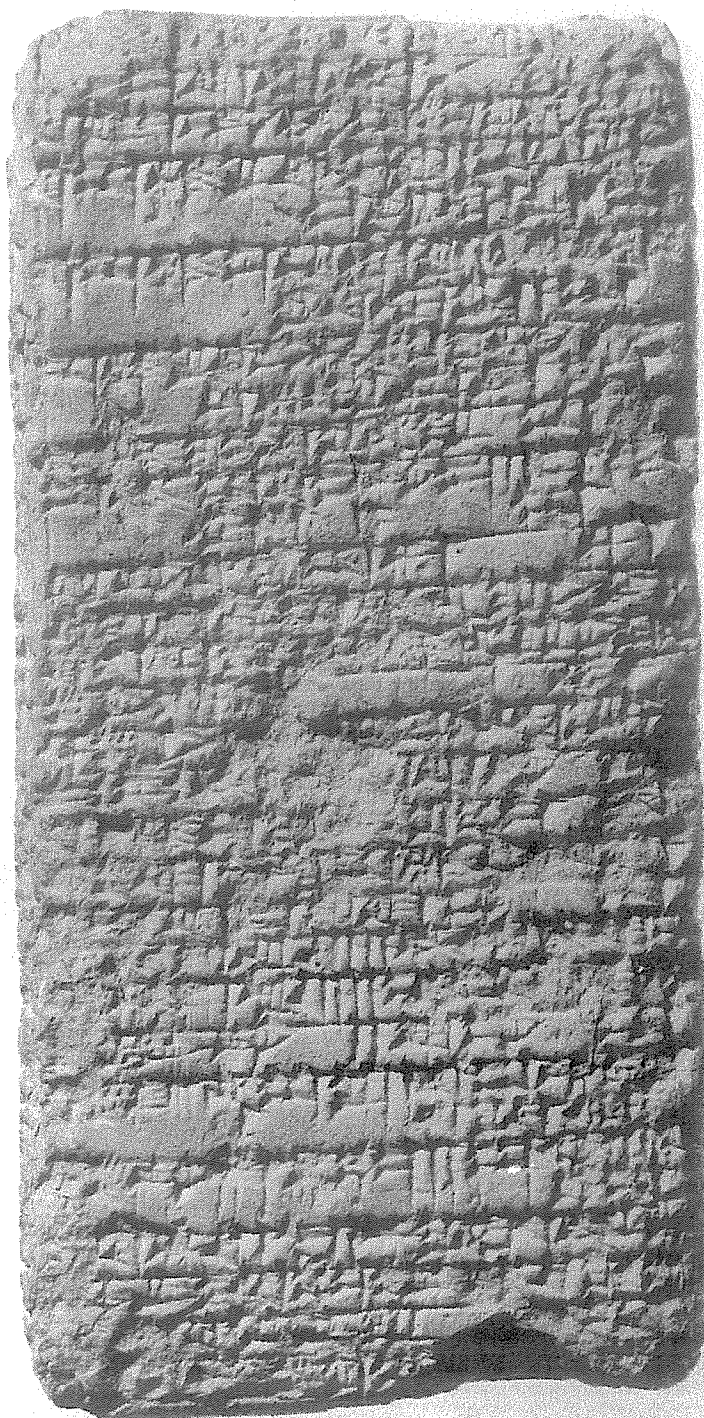
W-B 170 side a (A₃)



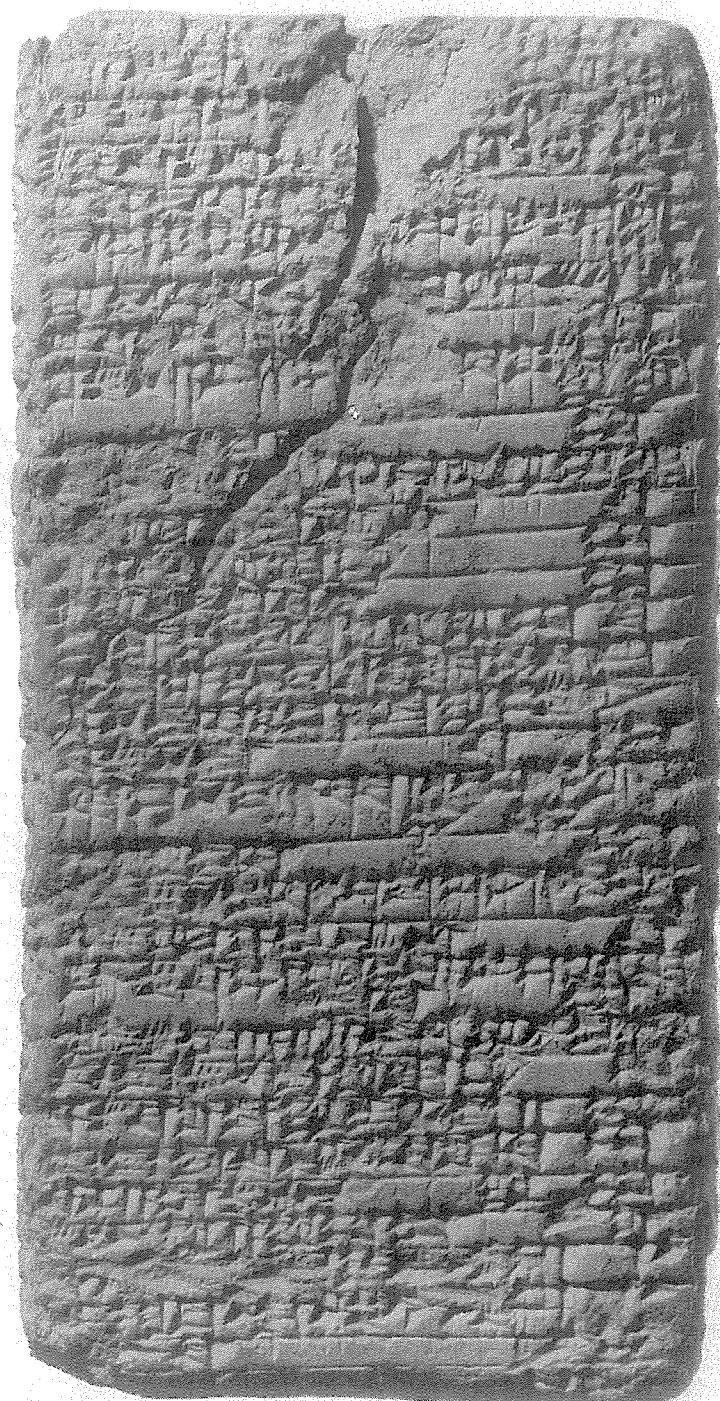
UET 6 172 rev. (A₂)



W-B 170 side b (A₃)

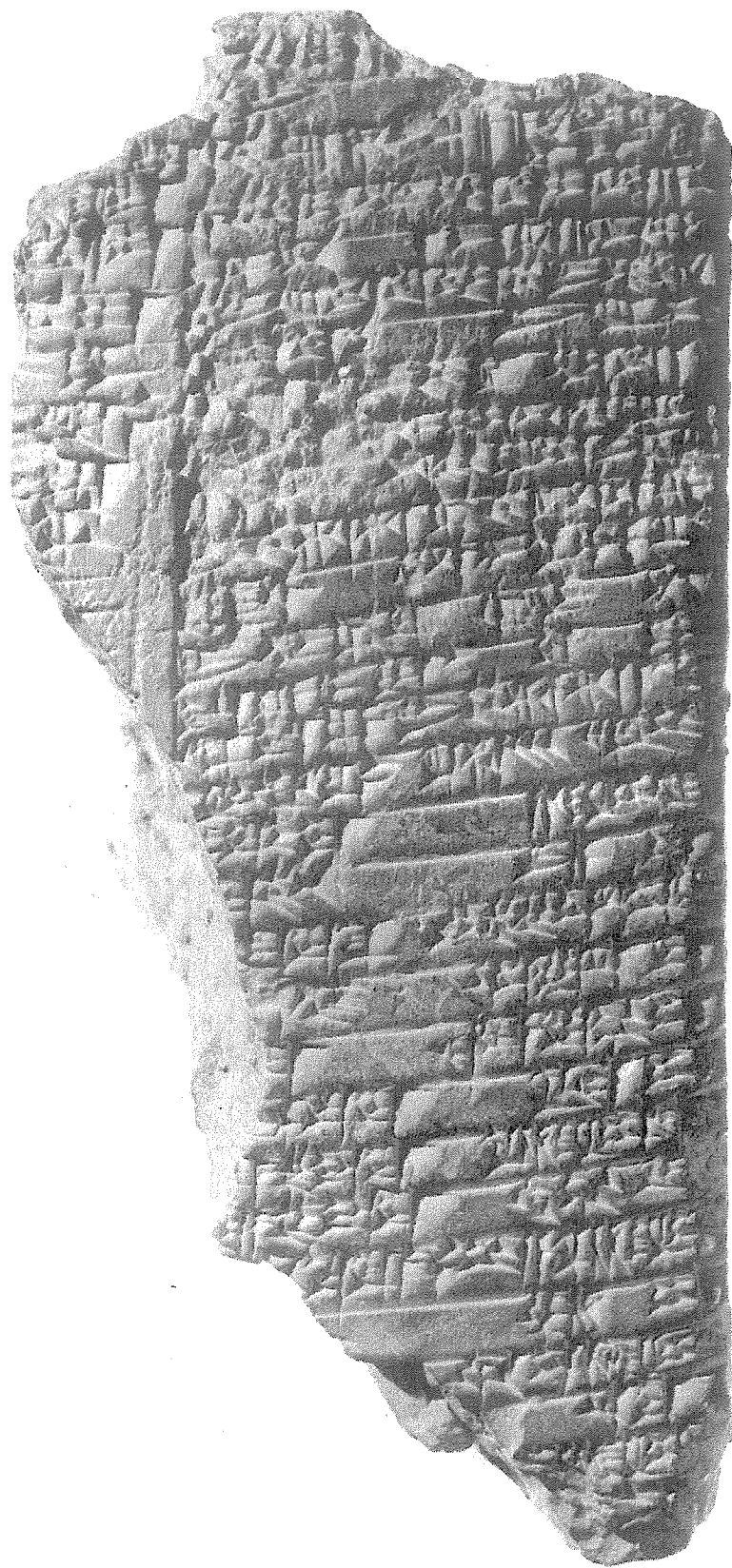


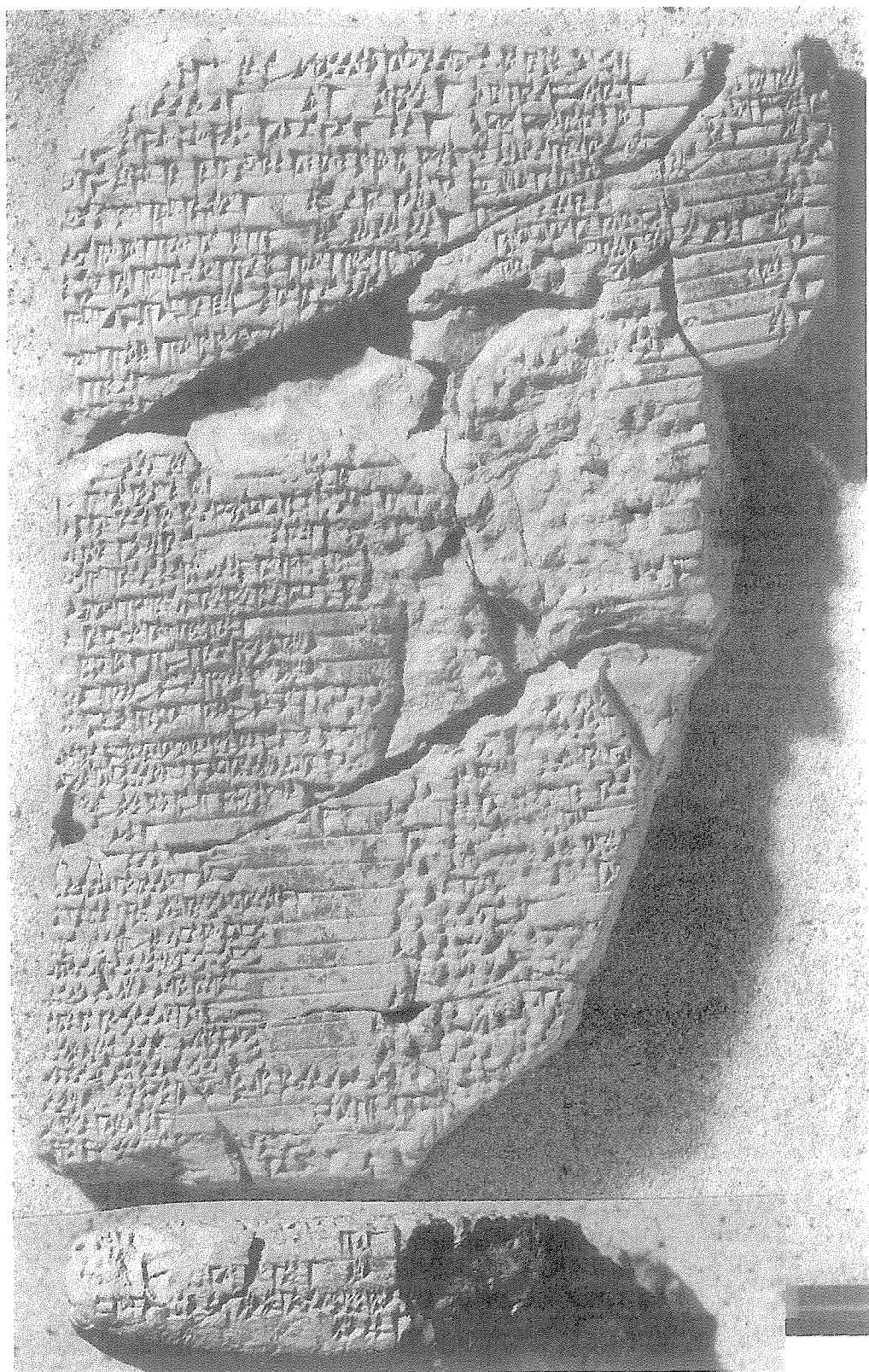
W-B 170 side c (A₃)





MLC 1359 obv. (C₃)





BM 80149 obv. (D₃)



